ORDER NO. EMID891242
A4

Service Manual

PCM Digital Piano

SX-PR1

(M)

Specifications

KEYBOARD	88 KEYS
KEY SPLIT	○ (G2, C3, C4)
FULLBAND SETTING COMPUTER	FSC, RECORD*
PLAY SEQUENCER	BASS, ACCOMP, LEFT, RIGHT, RECORD*
RIGHT/ACCOMP TONE	PIANO 1, 2, E PIANO 1, 2, HARPSICHORD, GUITAR, JAZZ GUITAR, HARP, VIBETONE, SYNTH PERC 1, 2, PIPE ORGAN, JAZZ ORGAN, STRING ENSEMBLE, VOCAL ENSEMBLE, BRASS, TRUMPET, TENOR SAX, CLARINET, FLUTE, SYNTH BRASS
	OCTAVE SHIFT (−2, −1), SUSTAIN PEDAL, BALANCE (RIGHT, ACCOMP)
LEFT/BASS TONE	PIANO 1, 2, E PIANO, HARPSICHORD, CLAVI, GUITAR, JAZZ GUITAR, HARP, SYNTH PERC, PIPE ORGAN, JAZZ ORGAN, STRING ENSEMBLE, VOCAL ENSEMBLE, BRASS, ACOUSTIC BASS, ELECTRIC BASS, CHOPPER BASS, SYNTH BASS
	OCTAVE SHIFT (+2, +1), SUSTAIN PEDAL, BALANCE (LEFT, BASS)
PEDAL SELECT	SOFT-SOSTENUTO, SOFT-START/STOP, FILL IN & INTRO-START/STOP
CHORUS	○
DIGITAL REVERB	ROOM, HALL 1, 2, PEDAL REVERB
TRANSPOSE	UP, DOWN (G~C~F♯)
KEYBOARD PERCUSSION	35 KEYS
RHYTHM (SELECTORS)	MARCH/COUNTRY, WALTZ, JAZZ WALTZ, SWING, CHA-CHA, RHUMBA, TANGO, SALSA, BOSSA NOVA, SHUFFLE, BALLAD, 8 BEAT, 16 BEAT, DISCO 1, 2, SWING ROCK, FUNK ROCK, SAMBA
(CONTROLS)	SYNCHRO START, START/STOP, BALANCE (DRUMS), TEMPO, BEAT INDICATORS
FILL IN & INTRO	○
ENDING	○
METRONOME	○
ONE TOUCH PLAY	○
AUTO PLAY CHORD	ADVANCED, BASIC, BASS & ACCOMP 1, 2, 3, 4
PROGRAM CHORD COMPUTER	PCC, RECORD*, CHORD COMPOSER (KEYBOARD, 𝄞, ◄, ►, D.S.)
MUSICAL DISPLAY	○
MODE SET	(MIDI) NORMAL, SEQUENCER TO EXT, MANUAL TO EXT, BOTH TO EXT, SONG SELECT, MIDI CLOCK, START/STOP, PROGRAM CHANGE, LEFT OFF (OTHERS) MIN RANGE, PIANO TUNING, MEDLEY, FD (NORMAL 1, 2, PRO)

Technics

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SUPPLEMENT SUPPLEMENT SUPPLEMENT

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TERMINALS	AUX IN .....INPUT LEVEL: 500mV, 15kΩ (R/R+L, L) LINE OUT ...OUTPUT LEVEL: 1.5V, 600Ω (R/R+L, L) PHONES .....USE HEADPHONES WITH OVER 16Ω IMPEDANCE
	MIC.....INPUT LEVEL: 7.5mV, 10kΩ VOLUME, DIGITAL ECHO
OTHERS	POWER SWITCH, MAIN VOLUME, MEMORY CARD SLOT, PEDAL, MIDI TERMINALS (IN, OUT, THRU), TUNE, AC CORD INPUT, INITIAL KEY, DIGITAL DISK RECORDER CONNECTOR , PEDAL...SUSTAIN, SOSTENUTO, SOFT
OUTPUT	80W×2
SPEAKERS	20cm (7-7/8″)×2, SQUAWKER 6cm (2-3/8″)×13cm (5-1/8″)×4, HORN TWEETER×2
POWER REQUIREMENT	340W
	AC 120V 60Hz
DIMENSIONS (W×H×D) (INCLUDING MUSIC STAND)	150cm (59-1/16″)×109.4cm (43-1/16″)×80.7cm (31-25/32″)
NETWEIGHT (INCLUDING MUSIC STAND)	88kg (194lbs.)
ACCESSORIES	MUSIC STAND, AC POWER CORD, INSTALLATION RAIL FOR SY-FD3, INSULATORS (3), SILICON CLOTH, MIDI cable (2)

*Common RECORD button is used for these buttons.

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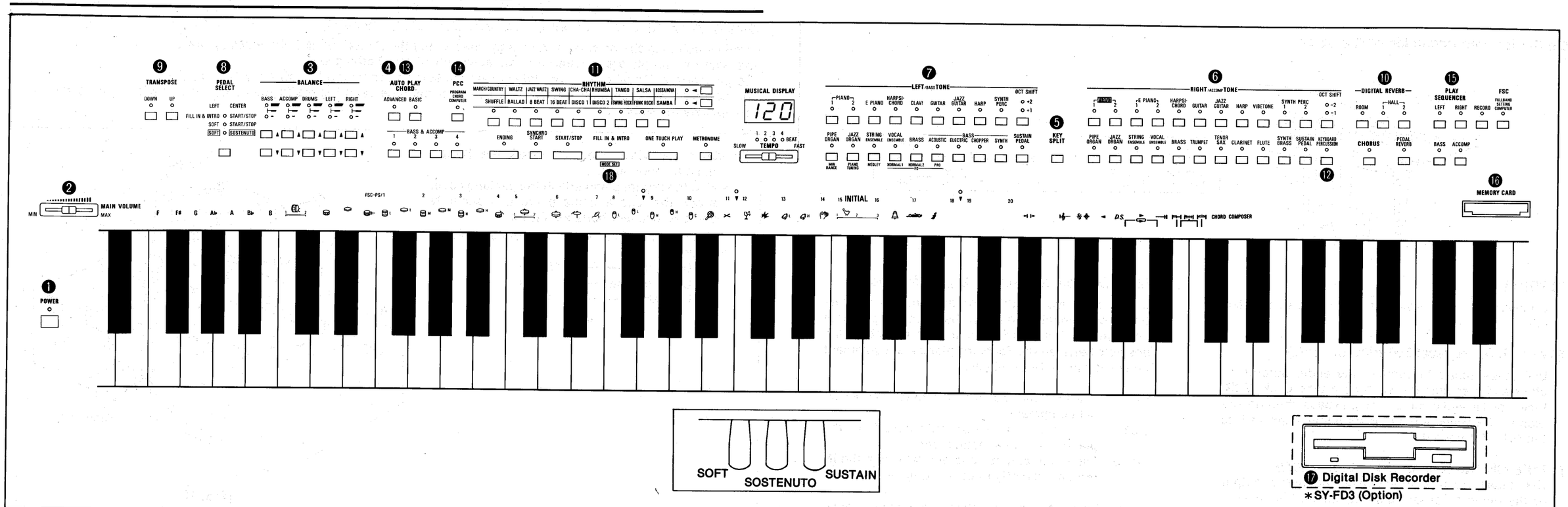
ARRANGEMENT OF CONTROL PANEL



BASIC FUNCTIONS

❸ BALANCE
The volumes for the **RIGHT**, **LEFT**, **DRUMS**, **ACCOMP** and **BASS** parts are adjusted with their respective ▲ and ▼ buttons. No sound is produced if both indicators are off.

❹ Playing modes
In addition to the normal (cancel) mode, the **AUTO PLAY CHORD** mode is also available, by which the bass and accompaniment sounds are automatically produced when a chord is played with the left hand.
For details on AUTO PLAY CHORD, refer to ⓭.

❺ Split function
The keyboard can be split into left and right parts for which different voices and effects can be assigned. The split location can be set at G2, C3 or C4.

❻ RIGHT/ACCOMP TONE
Select a voice and effects for the right part of a split keyboard, or for the whole keyboard when the split function is not used. Choose from 21 voices. Available effects are sustain, octave shift and chorus.

❼ LEFT/BASS TONE
This section is used to set the voice and effects for the left part of a split keyboard. There are 18 voices. The sustain and octave shift are available for the left keyboard also.

❽ Pedals
Control the sustain and quality of piano tones with the sustain pedal, soft pedal and sostenuto pedal. Or you can choose to activate the automatic rhythm or fill-in with the sostenuto pedal or soft pedal by using the **PEDAL SELECT** button.

❾ TRANSPOSE
Raise or lower the key of the entire piano with the **UP** and **DOWN** buttons. The transposed key is shown on the **MUSICAL DISPLAY**.

❿ DIGITAL REVERB
Apply a reverberation effect to the sound. Choose from four echo types.

⓫ RHYTHM
Select a preset rhythm from the 9×2 matrix and start it instantly with the **START/STOP** button. **BEAT** indicators, **SYNCHRO START**, **METRONOME**, **TEMPO** adjust and volume control (**DRUMS**) make playing easy. And regular Technics features such as automatic **FILL IN & INTRO**, **ENDING** pattern and **ONE TOUCH PLAY** add spice to your performance.

⓬ KEYBOARD PERCUSSION
Turning this button on transforms your keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

⓭ AUTO PLAY CHORD
This feature is selected when the **ADVANCED** or **BASIC** button is turned on. The bass and accompaniment are automatically produced when you play a key on the left part of the keyboard. Four **BASS & ACCOMP** buttons provide a variety of rhythmic and melodic patterns matched to the selected rhythm.

⓮ PROGRAM CHORD COMPUTER
Store the chord accompaniment, rhythm sequences, fill-ins, etc. of an entire song in the piano, then have it played back automatically while you play the melody. With the keys at the right end of the keyboard, store whole, half- or quarter-measure chords, specify repeat play, and more.

⓯ PLAY SEQUENCER
With this feature you can separately play and store the right, left, accompaniment and bass parts for an entire tune. Then have the whole synchronized sequence played back automatically.

⓰ MEMORY CARD
Record your performances or just the registrations on optional memory cards. Recall and reset the piano registrations—or have a whole tune performed automatically—in just seconds!

⓱ Digital Disk Recorder SY-FD3 (option)
The Digital Disk Recorder allows virtual unlimited storage and playback of your piano performances. A long tune, or up to ten shorter tunes, can be stored on each digital memory disk.

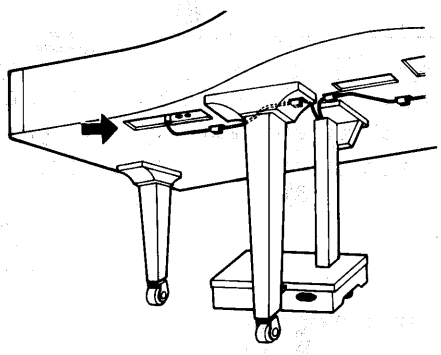
⓲ Other modes
The buttons in this section allow you to change the volume range, select the piano tuning, choose continuous playback of memory card contents or choose medley playback with the optional Digital Disk Recorder.

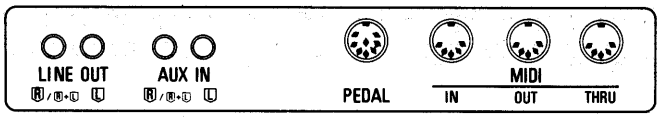
⓳ Adjustments and connection terminals
The adjustment controls and the terminals for optional accessories make this piano truly ideal for both solo and ensemble performance.

Note:
See separate instruction book for detail.

CONNECTION TERMINALS

(On the far right underside of the piano)





■ PEDAL

Connect the cable from the pedal unit to this terminal.

■ AUX IN (input level 500mVrms, 15kΩ)

Use these inputs to connect the audio outputs of other audio equipment, such as a tape deck, VCR, tuner, or an audio mixer, for playback through the piano. If connecting a monaural line, connect it to the **R/R+L** terminal.

■ LINE OUT (output level 1.5Vrms, 600Ω)

Use these outputs to connect the audio output of the piano to other audio equipment, such as a tape deck, VCR, audio mixer, tone cabinets, or additional amplifier/speaker systems. If connecting a monaural line, connect it to the **R/R+L** terminal.

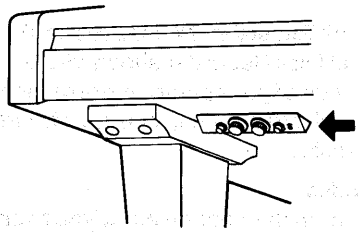
■ MIDI (Musical Instrument Digital interface)

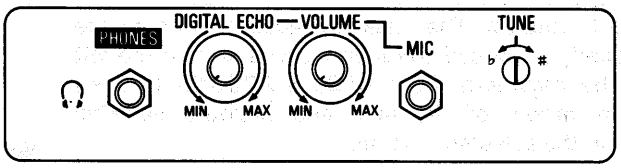
MIDI is standard specification that enables connection to equipment such as synthesizers and personal computers. Data transmission and reception are possible between the Technics piano and equipment provided with MIDI terminals.

IN: The terminal that receives data from external equipment.
OUT: The terminal that transmits data from the piano to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15m long) for these connections.
- This piano can transmit or receive data for **LEFT**, **RIGHT**, **BASS** and **ACCOMP** parts.

(Beneath the left keyboard)





■ PHONES (Use headphones with over 16 ohm impedance)

For silent practice headphones may be used. When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.

■ TUNE

During an ensemble performance with other instruments, fine adjustments of pitch can be made using this knob.

■ MIC (input level 7.5mV, 10kΩ)

The piano will accept a microphone of the unidirectional type. This type of microphone reduces feedback to the minimum.

■ MIC VOLUME balances instrumental or vocal sounds fed into the microphone with the loudness of the piano.

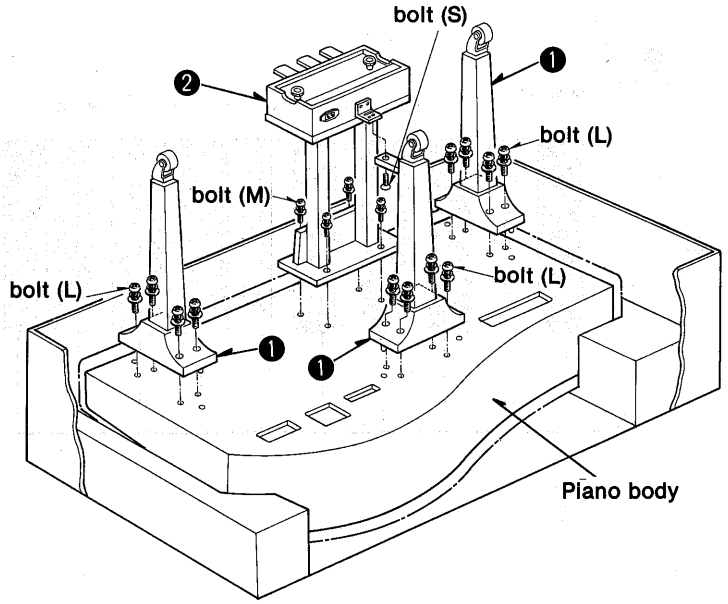
■ DIGITAL ECHO is used to adjust the amount of echo.

HOW TO ASSEMBLE THE PIANO

Assemble the Digital piano as shown in the following figures.

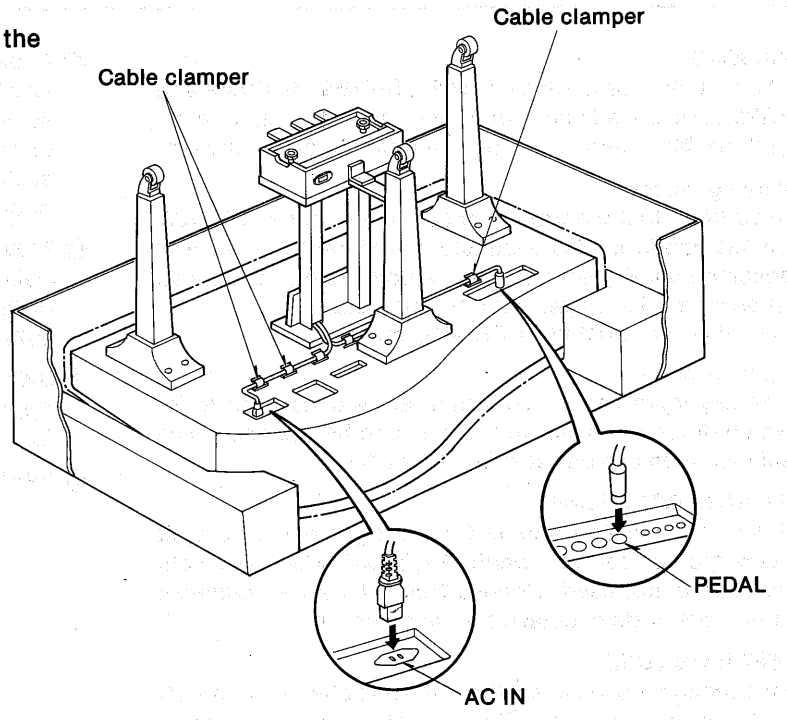
- Avoid scratching the finished surfaces by assembling the Digital piano in its packing case.
- At least two people are required for safe assembly of the Digital piano.
- To prevent the Digital piano from falling over, be sure to secure the legs firmly with the bolts.
- Do not remove the protective flannel wrapping or the tape securing the keyboard cover until the Digital piano is completely assembled.

1 • Open the vinyl bag to expose the Digital piano's under surface.
• With the Digital piano still in the packing case, attach the legs and the pedal unit securely with the included bolts as shown.
Attach legs ❶ first, then the pedal unit ❷.
• Screw kit
bolt (long) ——— 12 pcs.
bolt (medium) —— 4 pcs.
bolt (short) ——— 1 pc.



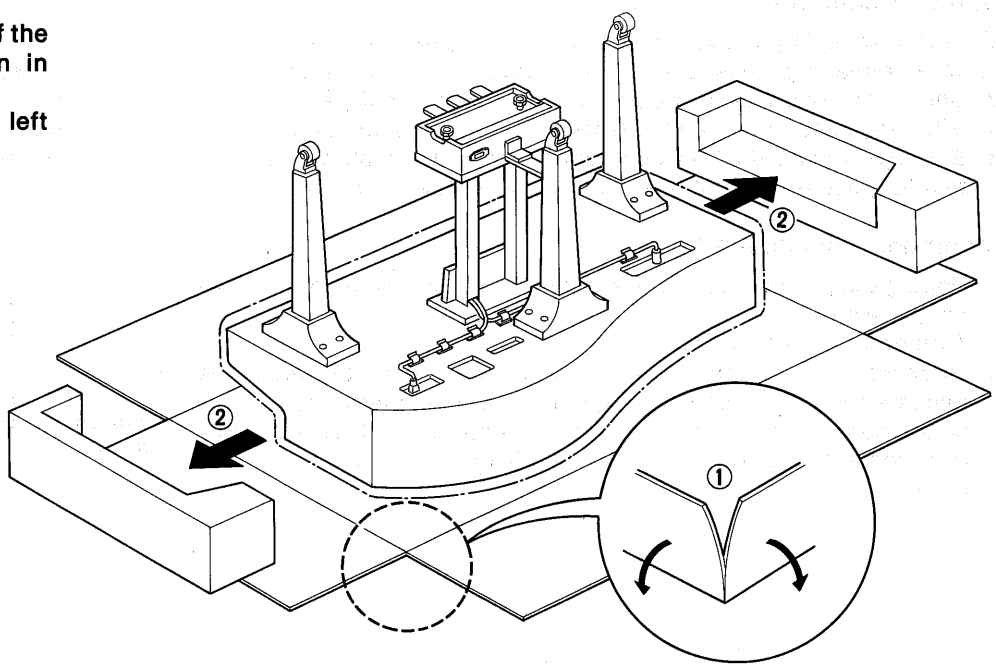
[Fig. 1]

2 • Connect the cable from the pedal unit to the Digital piano as shown.
• Secure the cable to the piano body with the included cable clampers as shown.



[Fig. 2]

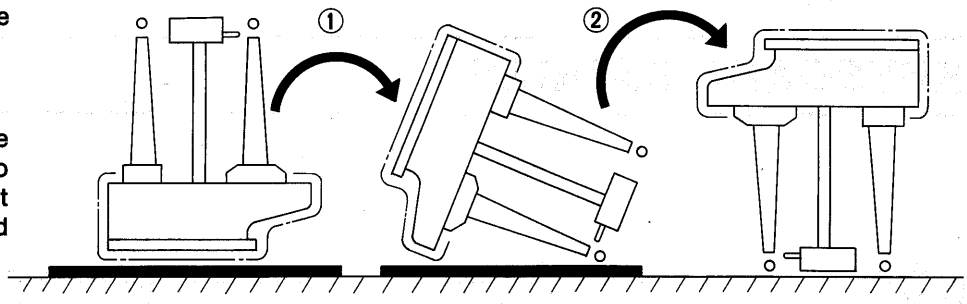
3 • Open the each corners of the packing case as shown in the figure.
• Remove the right and left foam cushions.



[Fig. 3]

4 • Stand the Digital piano upright as shown in the figure.

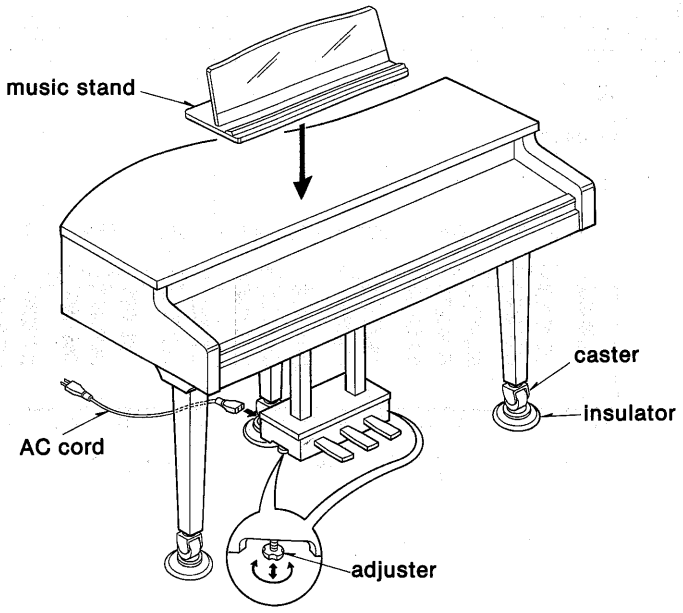
Caution
Be sure to provide adequate support to the Digital piano when standing it up so that undue weight is not applied to the legs.



[Fig. 4]

5 • Place the insulators under the casters, positioning the Digital piano in the desired location.
Use the adjusters to make the pedal unit secure.
Connect the AC cord to the rear of the pedal unit.
Place the music stand in the desired position on top of the Digital piano.

Caution
If the Digital piano is to be moved, be sure to first shorten the adjusters in order to prevent pedal unit damage and scratching the floor.



[Fig. 5]

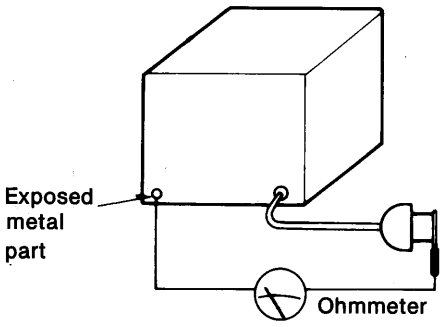
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

• Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

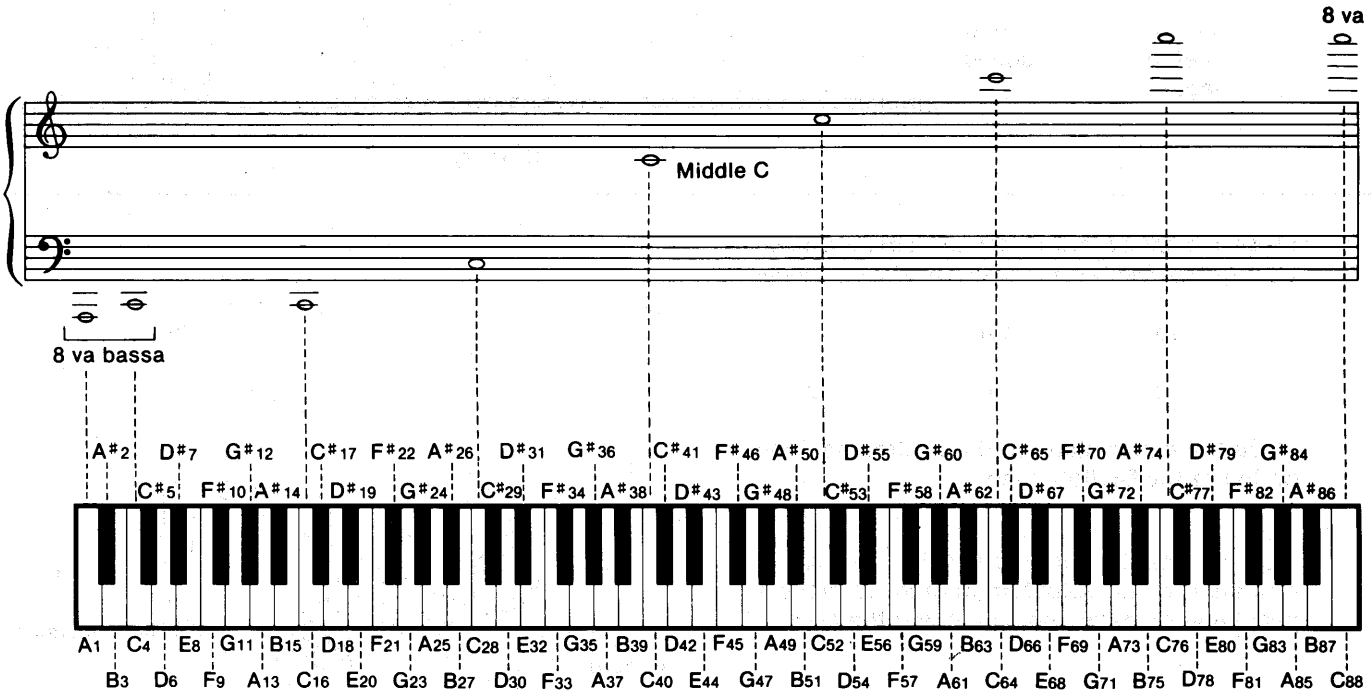
• Insulation Resistance Test

1. Unpulg the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc.. Mesurements should range from 4MΩ to infinity to all exposed parts.

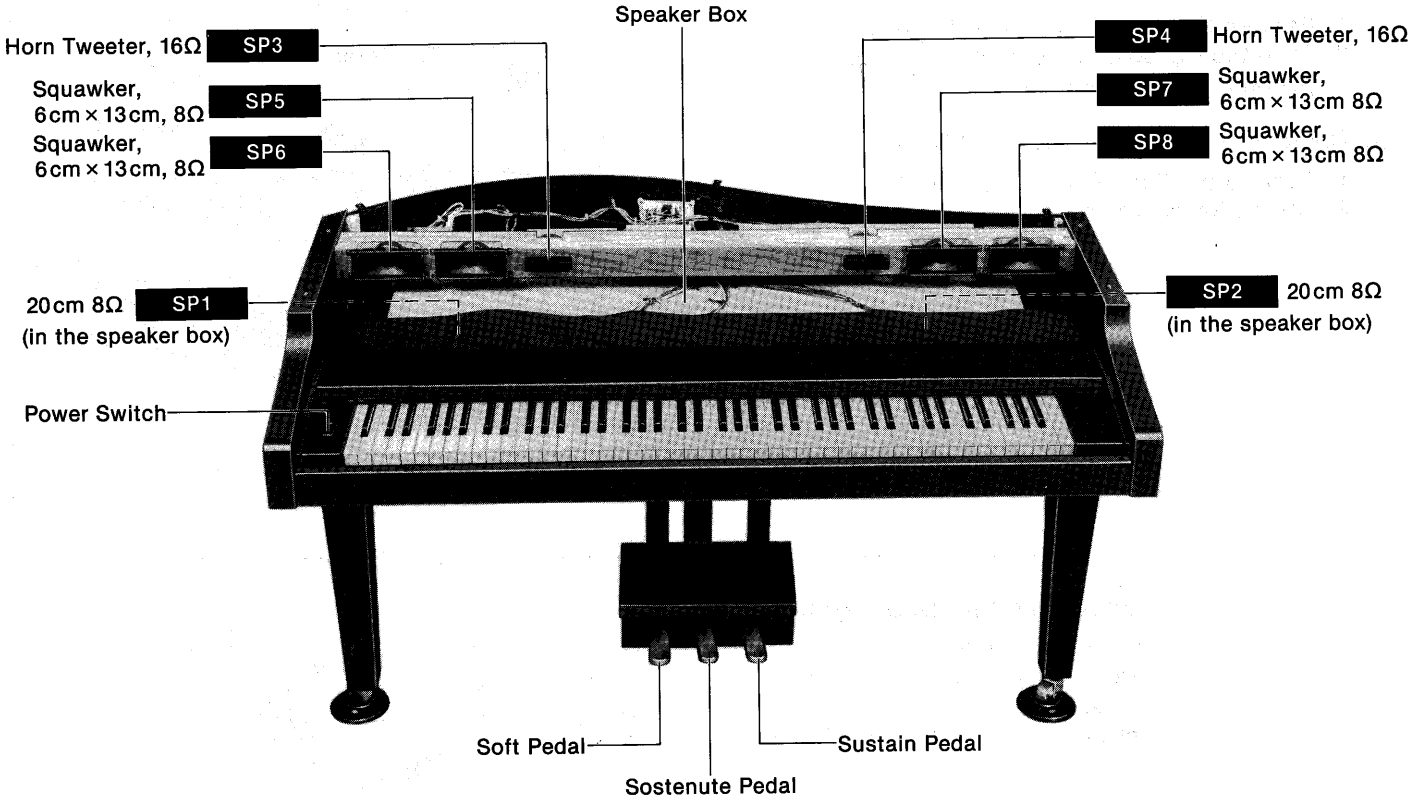


Resistance=4MΩ to ∞

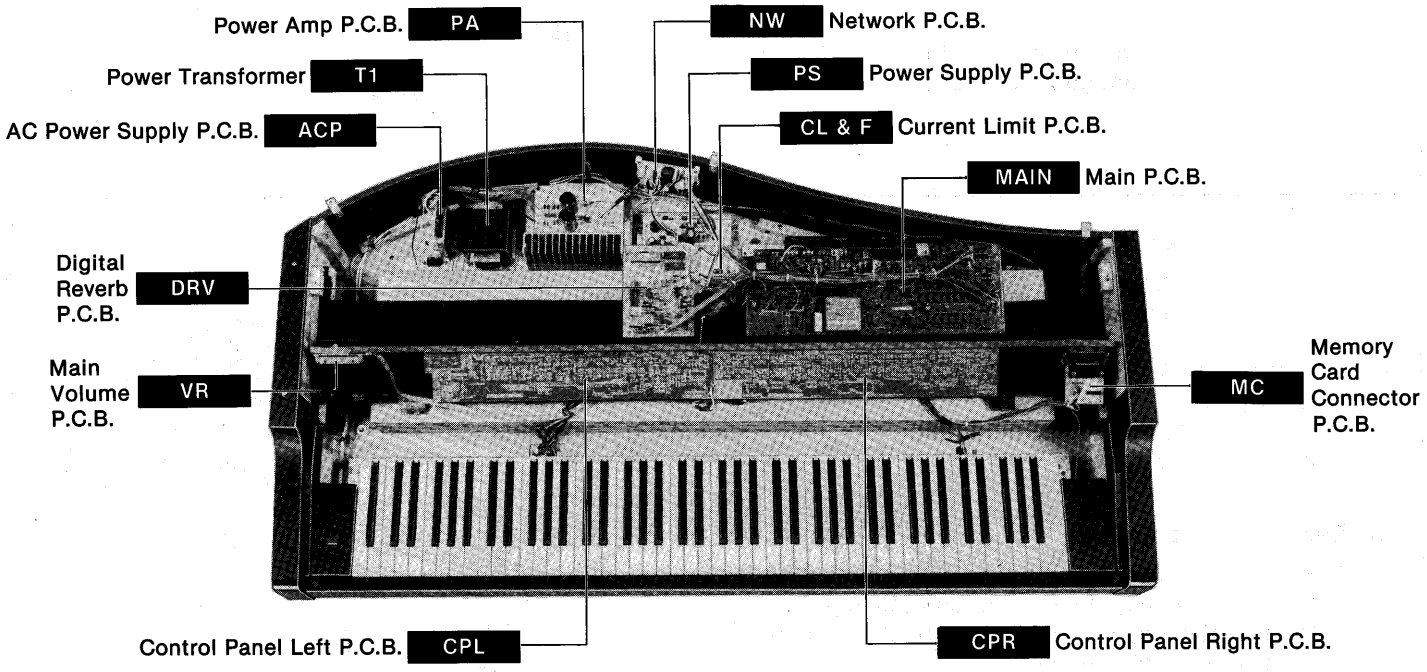
KEYBOARD RANGES



PARTS LOCATION



[Photo 1]



[Phonto 2]

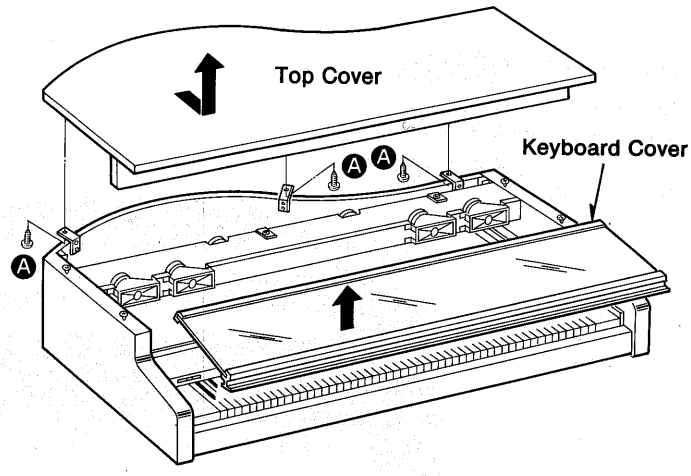
DISASSEMBLY INSTRUCTIONS

1. Removing the Top Cover (Fig. 6)

1. Remove the holding screws (Ⓐ 3 pcs.)
2. Slide the top cover forward and lift it up. (As shown by the arrow.)

2. Remove the Keyboard Cover (Fig. 6)

1. Remove the Top Cover. (See Step 1)
2. Lift the keyboard cover up.



[Fig. 6]

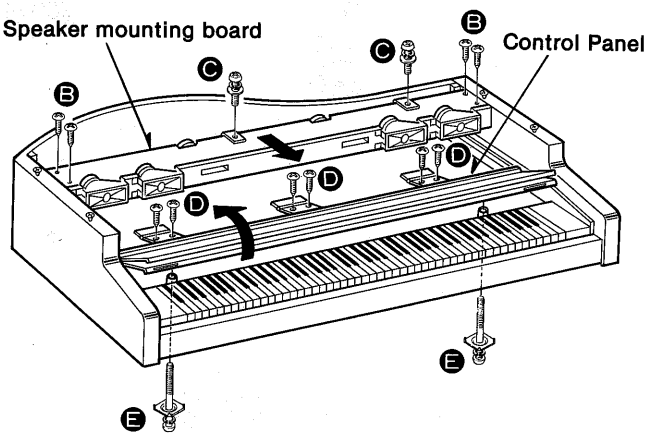
3. Remove the Speaker Mounting Board (Fig. 7)

1. Remove the Top Cover. (See Step 1)
2. Remove the Speaker mounting board screws. (Ⓑ 4 pcs. & Ⓒ 2 pcs.)
3. Lift the Speaker mounting board slightly and slide it forward.

4. Opening the Control Panel (Fig. 7)

1. Remove the Top Cover. (See Step 1)
2. Remove the hinge locking screws (Ⓓ 6 pcs.)
3. Remove the long screws located on the bottom of the cabinet. (Ⓔ 2 pcs.)
4. The control panel can now hinge back.

CAUTION:
Do not allow the plastic control cover to fall backward as damage may result.



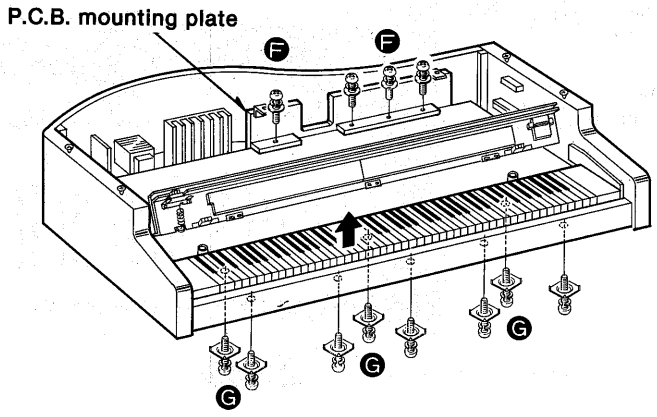
[Fig. 7]

5. Removing the P.C.B. mounting plate. (Fig. 8)

1. Remove the Top Cover. (See Step 1)
2. Remove the speaker mounting board. (See Step 3)
3. Remove the P.C.B. mounting plate screws. (Ⓕ 4 pcs.)
4. Carefully lift the P.C.B. mounting plate upward while turning the assembly so that the P.C.B. faces up.

6. Removing the Keyboard. (Fig. 8)

1. Remove the Top Cover. (See Step 1)
2. Remove the hinge locking screws (Ⓓ 6 pcs.)
3. Remove the long screws located on the bottom of the cabinet. (Ⓔ 2 pcs.)
4. The Control Panel can now hinge back.
5. Remove the short screws which are located underneath the keys. (Ⓖ 8 pcs.)



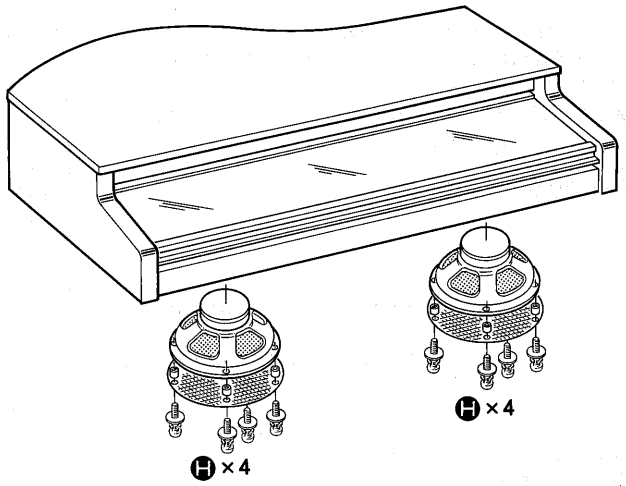
[Fig. 8]

7. Removing the 20cm Speakers. (Fig. 9)

1. Remove the Speaker mounting screws from the bottom of the cabinet. (ⓗ 4 pcs. each)

CAUTION:

Hold on to the Speaker while removing the screws to prevent the speaker from falling.



[Fig. 9]

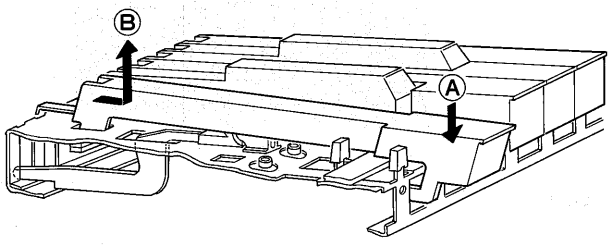
8. Keys(s)

Disassembly:

1. Remove the Keyboard from the cabinet. (See Step 6)
2. To release the key claw
   Ⓐ Press the front of the key downward slightly
   Ⓑ Press the rear of the key forward gently
3. To remove the key lift as shown in Figure 10.

NOTE:

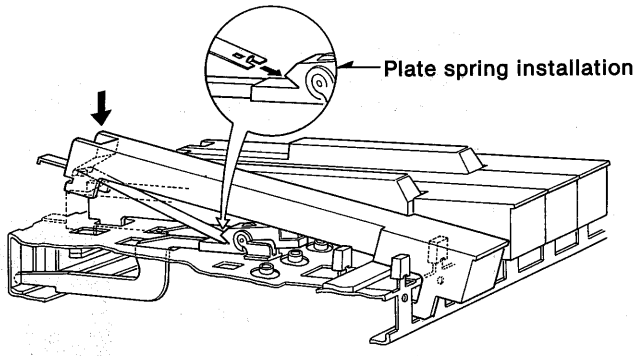
- The key claw can be broken easily. Do not apply undue force. Should a key claw break it can still be used, however, a replacement is recommended.
- If a black key is to be replaced it is necessary to remove both adjacent white keys.



[Fig. 10]

Assembly:

1. Insert the front part of the key into the chassis.
2. Insert the plate spring into the hammer notch as shown in Figure 11.
3. While slowly lowering the key into the chassis, insert the plate spring into the notch at rear of the key.
4. Carefully insert the key into the opening in the chassis and slide the key towards the rear to lock it in place.



[Fig. 11]

MEASUREMENTS AND ADJUSTMENTS

■ Measuring Equipment

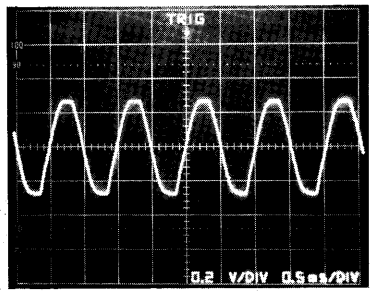
- Oscilloscope 20MHz, 10 : 1 probe
- Oscillator, 1kHz sine wave, 0~10Vp-p, 600Ω
- Capacitor, 50V 1μF (ECEA1HN010S)

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT P.C.B.	ADJ. POINT	CONNECTION(S)	METER READING
BBD bias (CHORUS)	any position	Oscilloscope and oscillator	MAIN P.C.B.	VR2	IC53-⑦ pin (• Oscillator IC52-③ pin)	Photo-A

1. Connect the oscilloscope to IC53-⑦ pin of MAIN circuit board.
2. Input 1kHz sine wave to IC52-③ pin by oscillator through capacitor of less than 50V 1μF. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped.
3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.

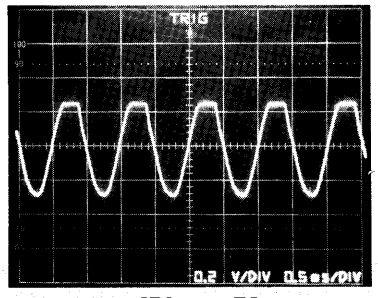
BBD bias adjustment

○: Good



[Photo-A]

×: Fault



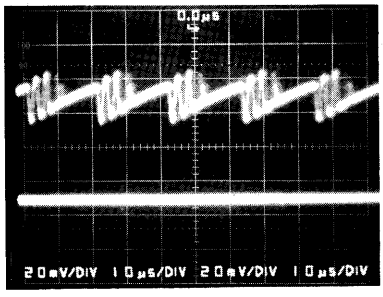
[Photo-B]

DRV bias	any position	Oscilloscope	DRV P.C.B.	VR1	Check point ❷	Photo-C
				VR2	Check point ❹	

1. Connect the oscilloscope to check point ❷ of DRV circuit board and adjust VR1 so that the output level on the oscilloscope are minimum level as shown in Photo-C.
2. Also connect the oscilloscope to check point ❹ of DRV circuit board and adjust VR2 as shown in Photo-C.

Fault →

Good →



[Photo-C]

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. Set the INITIAL mode before measurement.
   • INITIAL mode: Press the FSC button to turn it on, and then press the INITIAL key on the keyboard.
2. After INITIAL mode, set the measurement conditions as each check points.
3. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of triggering.
4. Since the 1/10 of the test probe is used, the indicated voltage value on bottom part of the each waveform photo is 1/10 of the actual value. (e.g. 0.2V/cm should be 2.0V/cm)
5. The tone signal output varies with the level of key pressing force. In this measurement, the waveform obtained with maximum key pressing force is shown. However, the output level and waveform may very, depending on the timing of triggering and measuring instrument and other conditions in the measurement.

■ Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   • Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   • All resistors are 1/4WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagrams.

(TABLE-1)

SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	[F]	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	[F]	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)
	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   • Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10% Tolerance)
   • Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type, ±20% Tolerance)

(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarised Electrolytic Capacitors	ECEA—N—type
Ⓨ	Non-Polarised Electrolytic (for Network System)	ECEA—Y—type
Ⓚ	Aluminum Electrolytic Capacitors (Miniature type)	ECEA—K—type ECEA—X—type
(MS)	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA—M—type
Ⓩ	Aluminum Electrolytic Capacitors (Low impeadance type)	ECEA—Z—type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV—type
(TF)	Polyester Film Capacitors	ECQB—type
○	Temprature Compensating Ceramic Capacitors	ECC—type
○	High-Dielectric Constant Ceramic Capacitors	ECK—type
	Metalized Polyester Film Capacitors for Across the Line	ECQ—EW—type
	Aluminum Electrolytic Capacitors for smooting Circuit	ECES—type

■ Symptoms which appear to be signs of trouble

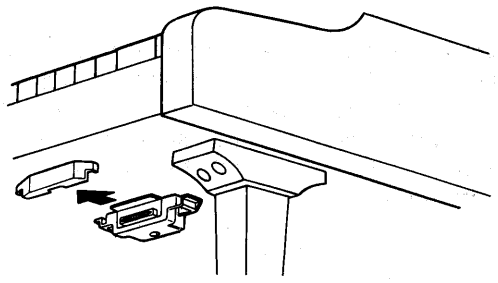
The following changes in performance may occur in the Technics digital piano but do not indicate trouble:

Phenomenon	Remedy
The buttons, keys, and others are not working properly. (It seems malfunctioning)	• Press the **FSC** (**FULLBAND SETTING COMPUTER**) button to turn it on, and then press the **INITIAL** key on the keyboard. • If the buttons and keys do not return to normal, turn off the **POWER** once, then on again. Turn on the **FSC** button and press the **INITIAL** key.
No sound is produced when the keys are pressed.	No sound is produced when the **LEFT** and **RIGHT** indicators in the **BALANCE** section are off. Press the ▲ buttons.
The keys on the left keyboard do not sound.	When no **TONE** indicator is lit for the left section, the left keyboard keys do not sound. Select and press a **TONE** button for the left keyboard.
The normal sound is not produced when the keys are played. Instead, the sounds from rhythm instruments are heard.	When the **KEYBOARD PERCUSSION** button in the **RIGHT TONE** block is on, the sounds of the percussive instruments indicated above the keys are produced. To return to the normal piano sound, select a different tone in the **RIGHT TONE** block.
Some notes can not be heard when many keys are played at the same time.	When the **AUTO PLAY CHORD** is off, the maximum number of notes which can sound simultaneously from the combined right and left keyboards is 12. When the **AUTO PLAY CHORD** is on, the maximum is 8 notes.
Sustain does not work, even when the sustain pedal is pressed.	Sustain is set separately for the right and left sections. Turn the **SUSTAIN PEDAL** button on for either or both parts.
The rhythm does not start.	• When a **PLAY SEQUENCER** button is on and a song without any rhythm is stored, the rhythm does not start. • When the clock mode is set to **MIDI CLOCK**, the rhythm does not start if no MIDI clock signal is received from another instrument. When using only the piano. return the clock mode to the internal clock, for example by turning off the **POWER** once.
Nothing is stored in the **PROGRAM CHORD COMPUTER** or **PLAY SEQUENCER**.	Selections must be made within 5 seconds after the **RECORD** button is pressed. After 5 seconds the **RECORD** button turns off and no further storage is possible.
Nothing is stored in the **PROGRAM CHORD COMPUTER**.	When storing chords, press a measure key (, ,) while holding down the chord. Be sure that the chord is not released until after the measure key is pressed.
When playing back the **PROGRAM CHORD COMPUTER**, the accompaniment is not performed.	When the **AUTO PLAY CHORD** is off, the **BASS** and **ACCOMP** do not sound; only the rhythm changes are performed. To play back the accompaniment, select an **AUTO PLAY CHORD** mode (**BASIC** or **ADVANCED**).
The **RECORD** and **PLAY SEQUENCER** indicators are flashing slowly, but storage is not performed.	• Storage is not possible when the **FSC** button is on. Turn it off before storing. • If another **PLAY SEQUENCER** indicator is lit, press the **START/STOP** button for automatic performance of the stored part. Another part can then be stored.
When playing back the **PLAY SEQUENCER**, a fast rhythm tempo becomes slower.	This may happen when an extremely large number of notes are programmed to be played at one time. Slow down the tempo, or decrease the number of notes to be played at one time.
When the operation to play back from the optional memory card is performed, the contents of the piano's internal memory are erased.	When performing the playback operation from a memory card, the piano's internal memory changes to that stored in the memory card. To preserve a song in the piano's memory, store it in a memory card.

Phenomenon	Remedy
The rhythm and melody do not coincide during automatic performance.	This occurs when automatic performance is started before some indication appears as confirmation after the **FSC** button has been pressed and the song has been selected using the keybaord. Be sure to wait until the **FSC** indicator flashes rapidly.
An error beep sounds or an error (E rr) is indicated when the **FSC** button is pressed in order to store on or read from a memory disk.	• When the memory disk is not correctly inserted, a beep will sound. Remove the memory disk and insert it correctly. • If an error is displayed during read out of a **NORMAL** mode disk, turn on the **FSC** button again. Then press the key corresponding to the number of the song to be read out.
When using a memory card and digital memory disk together, the performance cannot be stored in or read from the memory card.	The performance cannot be stored in or read from a memory card when a memory disk is in the Digital Disk Recorder. Store in or read from the memory card after removing the memory disk.

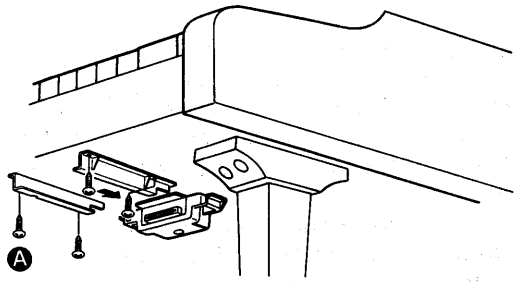
INSTALLATION OF SY-FD3 (OPTION)

1 • Make sure that the power to the Technics piano is turned off.
• Remove the cover from the connector unit.



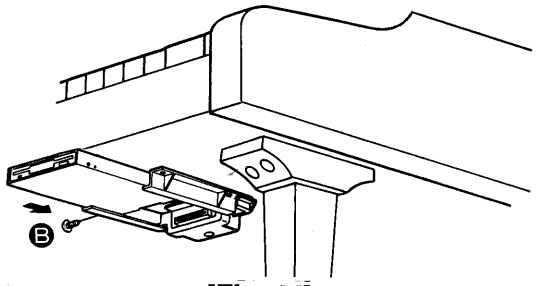
[Fig. 12]

2 • Completely insert the right and left guide rails into the grooves of the connector unit.
• Affix the guide rails to the underside of the piano with the four screws Ⓐ.



[Fig. 13]

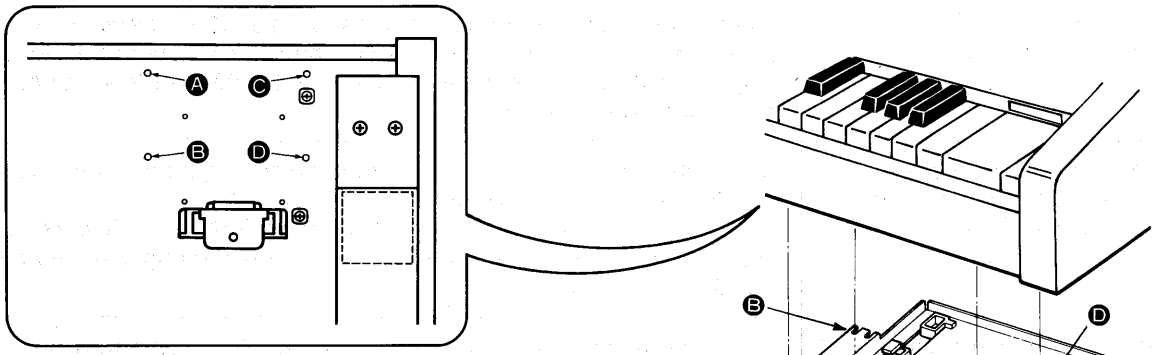
3 Insert the Digital Disk Recorder (SY-FD3) along the guide rails, and push it in firmly and completely.
• Secure the Digital Disk Recorder to the left guide rail with screw Ⓑ.



[Fig. 14]

INSTALLATION OF SY-MQ8 (OPTION)

When using the separately sold SZ-BR1 Sequencer Bracket, install as shown below.

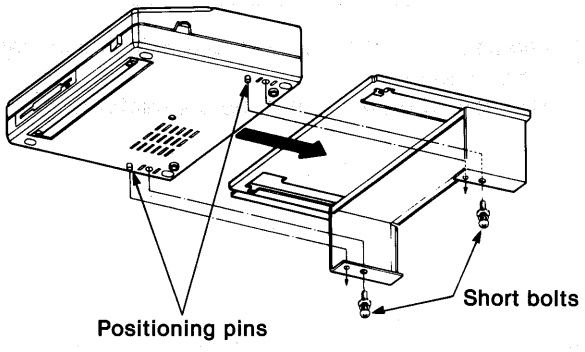


[Fig. 15]

[Fig. 16]

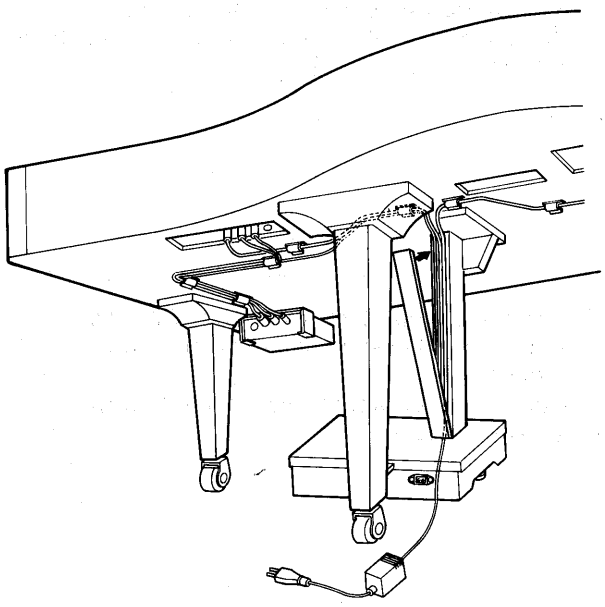
1 The Sequencer bracket is installed below the right side of the piano with four long bolts.
- As shown in the figure, the left hole Ⓐ and the left notches Ⓑ, Ⓒ and Ⓓ and used for installing.
- The installation screwholes on the piano are shown in the above figure. The hole and notches Ⓐ~Ⓓ on the sequencer bracket should be matched up with screwholes Ⓐ~Ⓓ on the piano.

2 After attaching the sequencer bracket to the piano, install the MIDI Sequencer. The positioning pins on either side of the MIDI Sequencer fit into the respective forward holes on the sequencer bracket. Secure the MIDI Sequencer to the bracket with the two short bolts.



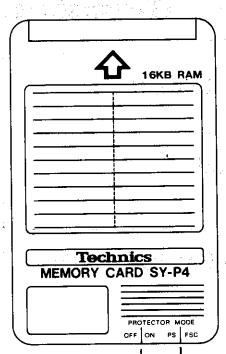
[Fig. 17]

3 MIDI connection cables and AC adaptor cord wiring (For connection of the MIDI cables and the AC adaptor, refer to MIDI Sequencer operation manual.)
- After connecting the cords, used the included cord clamps to secure the cords as shown in the figures below.
- Be sure to leave enough slack between the connection terminals on the rear of the sequencer unit and the clamp attachment location. (Refer to the illustration.)



[Fig. 18]

OPTIONAL MEMORY CARD (SY-P4) SERVICING



MODE switch...PS/FSC

PROTECTOR switch...OFF/ON
Protect memorized data and can not re-store the new data at ON position. Turn to OFF for new data memory.

• **STORAGE**

PS mode	One **PLAY SEQUENCER** performance. (Long one song memory and reply. The memory capacity is the same as piano's internal memory capacity.)
FSC mode	20 performances registrations. (Storing and repositioning of function setting.)

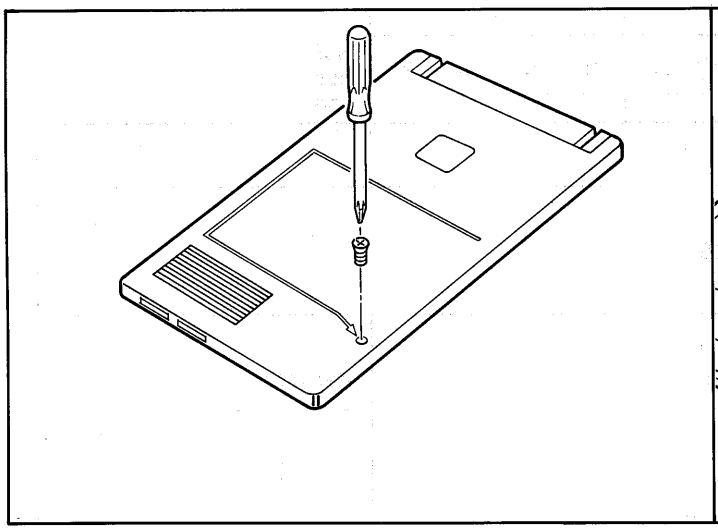
■ Precautions when using the memory card

1. The life of battery is about 3 years under normal temperatures.
2. The memorized data will be eliminated when the battery worn after the life time and new battery is required for new data memory.
3. To keep important memory long time, it is necessary to maintain battery exchange as following steps.
   * Copy memorized data from card to piano and replace the battery and re-store the data from piano to card again.

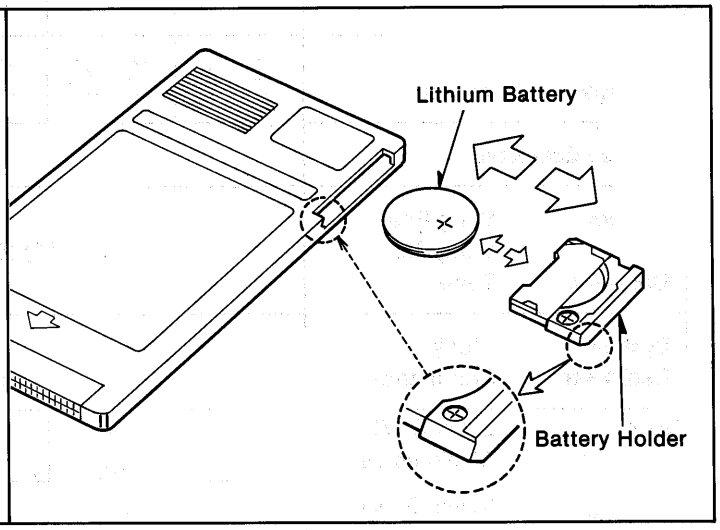
■ Battery replacing method

Caution: Before replacing the battery, be sure to explain the user that the memory entries will be erased. When storing the memory entries, copy them before replacing the battery.

1. Remove one screw on the back of memory card.
2. Pull out the battery holder as in Fig. 20.
3. When setting the battery, check the plus (+) mark of battery and the (+) mark of battery holder, and set it in correct polarity.
4. When setting the battery holder on the main body of memory card, be sure to set it in correct position.



[Fig. 19]



[Fig. 20]

MIDI IMPLEMENTATION CHART

[SX-PR1] **[PCM Digital Piano]** **(Transmitted)**

Function...		RIGHT	LEFT	ACCOMP	BASS	DRUMS	Remarks
Basic Channel	Default	1~14, 16	1~14, 16	1~14, 16	1~14, 16	15	memorized
	Changed	1~14, 16	1~14, 16	1~14, 16	1~14, 16	×	
Mode	Default	3	3	3	3	3	OMNI OFF POLY MODE
	Messages	×	×	×	×	×	
	Altered	——	——	——	——	——	
Note Number	True voice	1~126 ——	1~126 ——	1~126 ——	1~126 ——	× ——	Changes depending on the position of the MIDI octave shift
Velocity	Note ON	○	○	○	○	×	
	Note OFF	× (9nH:V=0)	× (9nH:V=0)	× (9nH:V=0)	× (9nH:V=0)	——	
After Touch	Key's	×	×	×	×	×	
	Ch's	×	×	×	×	×	
Pitch Bender		×	×	×	×	×	
Control Change	7	*○ ×	*○ ×	*○ ×	*○ ×	*○ ×	balance
	64	*○ ×	*○ ×	*○ ×	*○ ×	×	sustain pedal
	66	*○ ×	*○ ×	×	×	×	sostenuto pedal
	67	*○ ×	*○ ×	×	×	×	soft pedal
	80	×	*○ ×	×	×	×	auto play chord
	81	×	×	×	×	*○ ×	bass & accomp
	82	×	×	×	×	*○ ×	ending, fill in & intro
	83	*○ ×	*○ ×	×	×	×	oct shift
	93	*○ ×	*○ ×	*○ ×	×	×	chorus
Prog Change	True #	*○ × ——	*○ × ——	*○ × ——	*○ × ——	*○ × ——	Refer to the instruction book regarding program change number
System Exclusive		×					
System Common	Song Pos	×					
	Song Sel	*○ (0~19) ×					
	Tune	×					
System Real Time	Clock	○					
	Commands	*○ ×					start/stop
Aux Messages	Local ON/OFF	×	×	×	×	×	
	All Notes OFF	○	○	○	○	×	
	Active Sense	○					
	Reset	×					
Notes		*○ × ..... Whether or not the data for each of these items is transmitted can be set.					

Mode 1: OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
Mode 3: OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

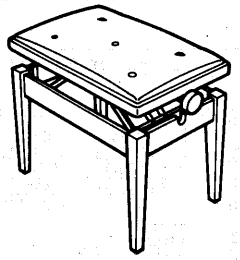
[SX-PR1] **(Recognized)**

Function...		RIGHT	LEFT	ACCOMP	BASS	DRUMS	Remarks
Basic Channel	Default	1~14, 16	1~14, 16	1~14, 16	1~14, 16	15	memorized
	Changed	1~14, 16	1~14, 16	1~14, 16	1~14, 16	×	
Mode	Default	3	3	3	3	3	OMNI OFF POLY MODE
	Messages	×	×	×	×	×	
	Altered	———	———	———	———	———	
Note Number		1~126	1~126	1~126	1~126	×	Changes depending on the position of the octave shift or transpose control.
	True voice	21~119	21~119	21~119	21~119	×	
Velocity	Note ON	○	○	○	○	×	
	Note OFF	× (9nH:V=0)	× (9nH:V=0)	× (9nH:V=0)	× (9nH:V=0)	×	
After Touch	Key's	×	×	×	×	×	
	Ch's	×	×	×	×	×	
Pitch Bender		×	×	×	×	×	
Control Change	7	*○ ×	*○ ×	*○ ×	*○ ×	*○ ×	balance
	64	*○ ×	*○ ×	*○ ×	*○ ×	×	sustain pedal
	66	*○ ×	*○ ×	×	×	×	sostenuto pedal
	67	*○ ×	*○ ×	×	×	×	soft pedal
	80	×	*○ ×	×	×	×	auto play chord
	81	×	×	×	×	*○ ×	bass & accomp
	82	×	×	×	×	*○ ×	ending, fill in & intro
	83	*○ ×	*○ ×	×	×	×	oct shift
	93	*○ ×	*○ ×	*○ ×	×	×	chorus
Prog Change	True #	*○ ×	*○ ×	*○ ×	*○ ×	*○ ×	Refer to the instruction book regarding program change number
System Exclusive		×					
System Common	Song Pos	×					
	Song Sel	*○ (0~19) ×					
	Tune	×					
System Real Time	Clock	○					
	Commands	*○ ×					start/stop
Aux Messages	Local ON/OFF	×	×	×	×	×	(123~127)
	All Notes OFF	○	○	○	○	×	
	Active Sense	○					
	Reset	×					
Notes		*○ × ..... Whether or not the data for each of these items is received can be set.					

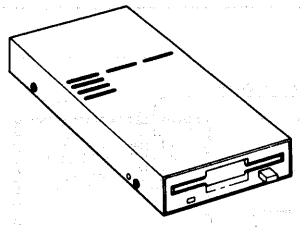
Mode 1: OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
Mode 3: OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

- This product adheres to MIDI specifications as published by the Japan MIDI Association.

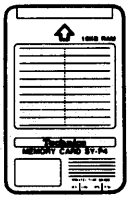
OPTIONS



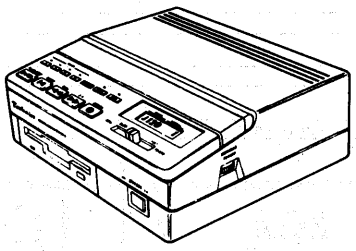
SZ-CP10
Bench



SY-FD3
Digital Disk Recorder



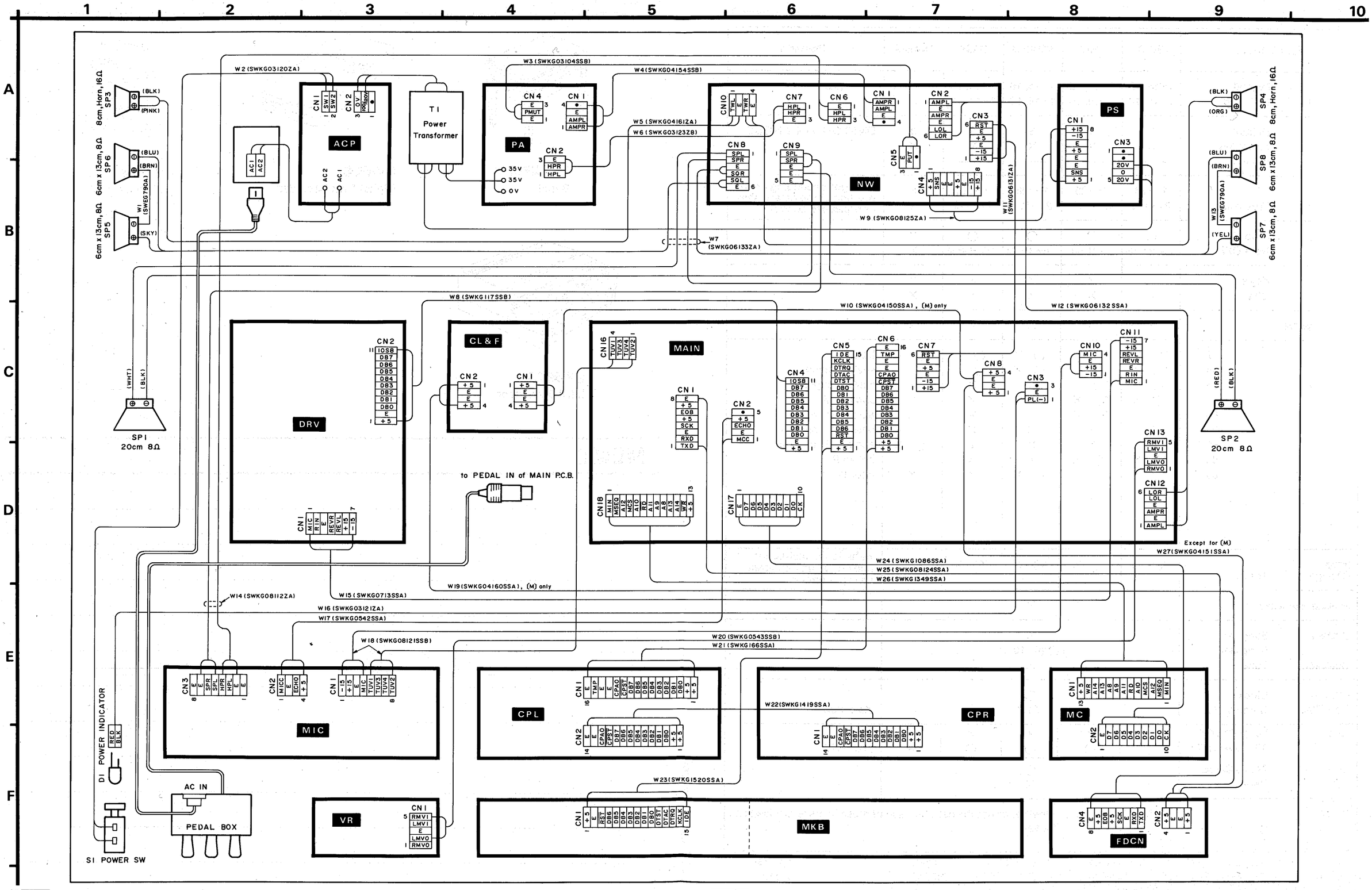
SY-P4
Memory Card



SY-MQ8
MIDI Sequencer

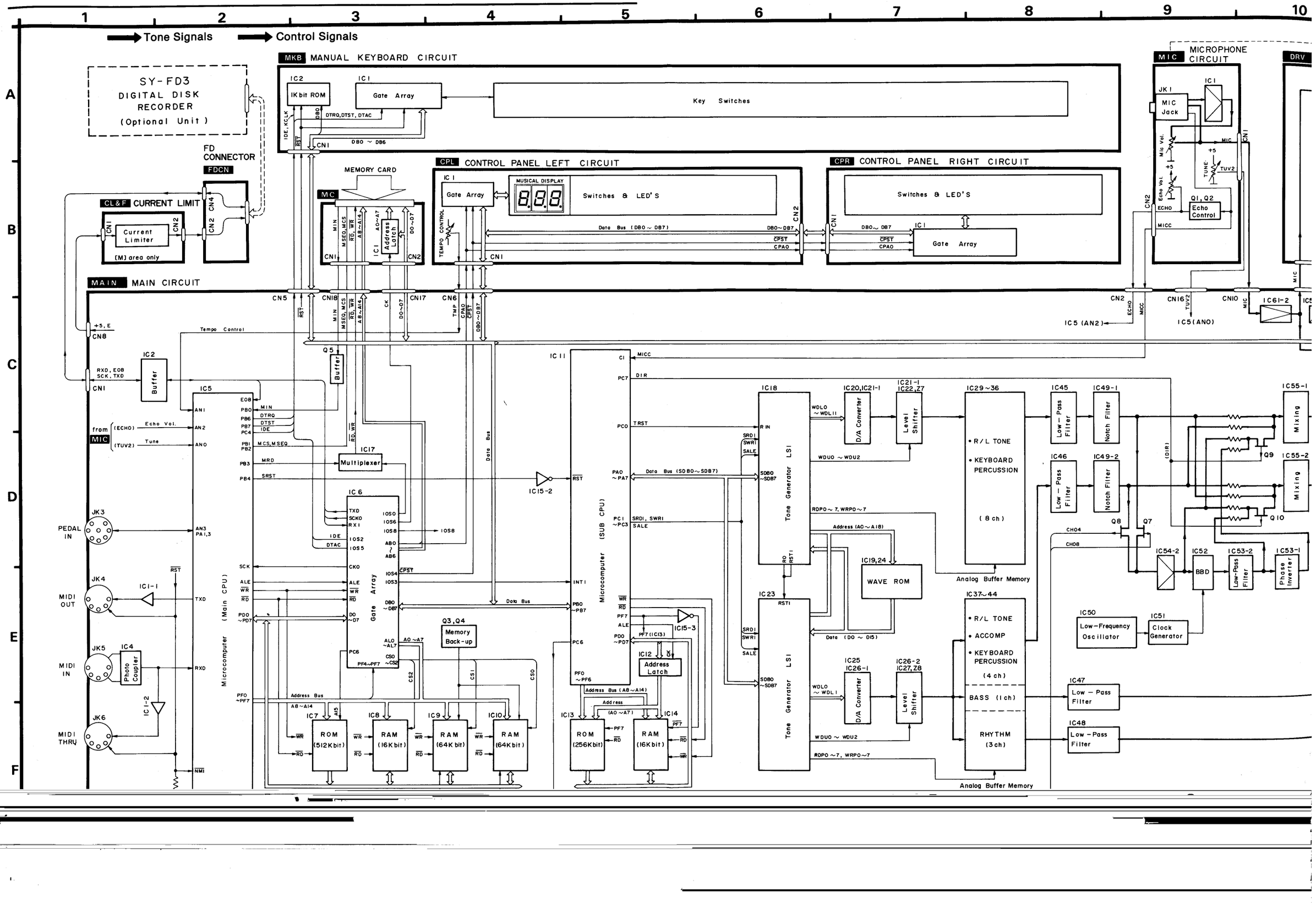
MEMO

WIRING CONNECTION DIAGRAM



II-1 II-2

BLOCK DIAGRAM



Key Switches

CPR CONTROL PANEL RIGHT CIRCUIT

Switches & LED'S

DB0~DB7 CPST CPAO CN2 CN1 IC1 Gate Array

MIC MICROPHONE CIRCUIT

JK1 MIC Jack IC1 Mic Vol. Echo Vol. +5 TUNE TUV2 Q1, Q2 Echo Control ECHO MICC MIC CN1 CN2

DRV DIGITAL REVERB CIRCUIT

IC11-2 High-Pass Filter IC11-2 Low-Pass Filter IC13-2 IC12-2 High-Pass Filter IC12-1 Low-Pass Filter IC13-1 IC6 A/D Converter SCKO SDO WSO RST CLK IC5 Gate Array SWL SWR IC10 Dynamic Noise Reduction IC15-2 LPF IC15-1 LPF IC14-1 IC16-2 LPF IC16-1 LPF IC14-2 IC9 IC7 D/A Converter DO~D15 IC1 Reset IC EWE EA0~5 IC2 Digital Signal Processor FLI RST X1 20MHz IC4 RAM IC3 RAM AO~A14 CS, OE, WE CN1 CN2

D1 Power Indicator S1 Power SW AC Cord

ACP AC Primary Circuit CN1 AC1 AC2 CN2 T1 Power Transformer

CN2 ECHO MICC CN16 TUV2 CN10 MIC IC61-2 IC54-1 CN11 MIC RIN REV REVL CN4 DB0-7 IOSB

IC5 (AN2) IC5 (AN0) IC6 (IOSB)

CN3 CN7 PLI E +15V -15V +5V RST -15V

NW CN3 CN4 +15V -15V +5V SNS E +5V Q1,2 Relay Driver

PS CN3 CN1 Reset Circuit Voltage Regulator (+15V, -15V, +5V)

PA D1,2,D4,5,D8,9,D11,12 +Vcc -Vcc Rectifier IC1-1 Power Amp IC1-2 Power Amp

IC18 Tone Generator LSI R IN SRD SWRT SALE SDB0~SDB7 WDL0~WDL11 WDU0~WDU2 RDP0~7, WRP0~7 Address (A0~A18) RD RST1 IC19,24 WAVE ROM Data (D0~D15) IC23 Tone Generator LSI IC20,IC21-1 D/A Converter IC21-1 IC22,Z7 Level Shifter IC25 IC26-1 D/A Converter IC26-2 IC27,Z8 Level Shifter

IC29~36 • R/L TONE • KEYBOARD PERCUSSION (8 ch) Analog Buffer Memory

IC37~44 • R/L TONE • ACCOMP • KEYBOARD PERCUSSION (4 ch) BASS (1 ch) RHYTHM (3 ch) Analog Buffer Memory

IC45 Low-Pass Filter IC49-1 Notch Filter IC46 Low-Pass Filter IC49-2 Notch Filter (DIR) Q9 Q10 Q8 Q7 CH04 CH08

IC55-1 Mixing IC55-2 Mixing IC57-1 Mixing IC57-2 Mixing IC58 Dynamic Noise Reduction CN13 CN1

VR Main Volume LMVI RMVI LMVO RMVO Q11 Q12 IC60-1 Lch Amp IC60-2 Rch Amp CN12 CN2 CN1

IC54-2 IC52 BBD IC53-2 Low-Pass Filter IC53-1 Phase Inverter

IC50 Low-Frequency Oscillator IC51 Clock Generator

D29, R210 R211, C157 Gate Control

AMPL AMPR LOR LOL CN2 CN1 CN5 PMUT +5V CN4 CN7 HPR HPL CN2

JK9 R/R+L JK10 L LINE OUT

IC56-2 AUX Amp (R/R+L) IC56-1 AUX Amp (L) JK7 R/R+L JK8 L AUX IN

RL1 RL2 CN6 HPL HPR CN3 CN9 SPL SPR JK2 Headphones Jack

MIC' continuation of MIC P.C.B.

CN10 TWR SPL SPR SOL SOR CN8

SP6 6x13cm 8Ω SP5 6x13cm 8Ω SP3 8cm Horn 16Ω SP1 20cm, 8Ω SP2 20cm, 8Ω SP4 8cm Horn 16Ω SP7 6x13cm 8Ω SP8 6x13cm 8Ω

MAIN, MAIN VOLUME, MEMORY CARD CONNECTOR CIRCUIT BAORD

1 2 3 4 5 6 7 8 9 10

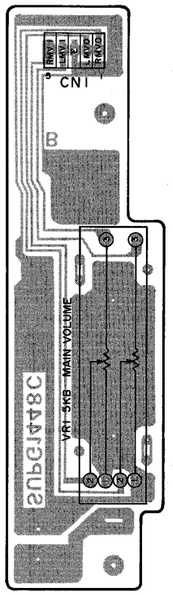
A B C D E F

Circuit view on top of P.C.B.

*P.C.B. Comparision chart

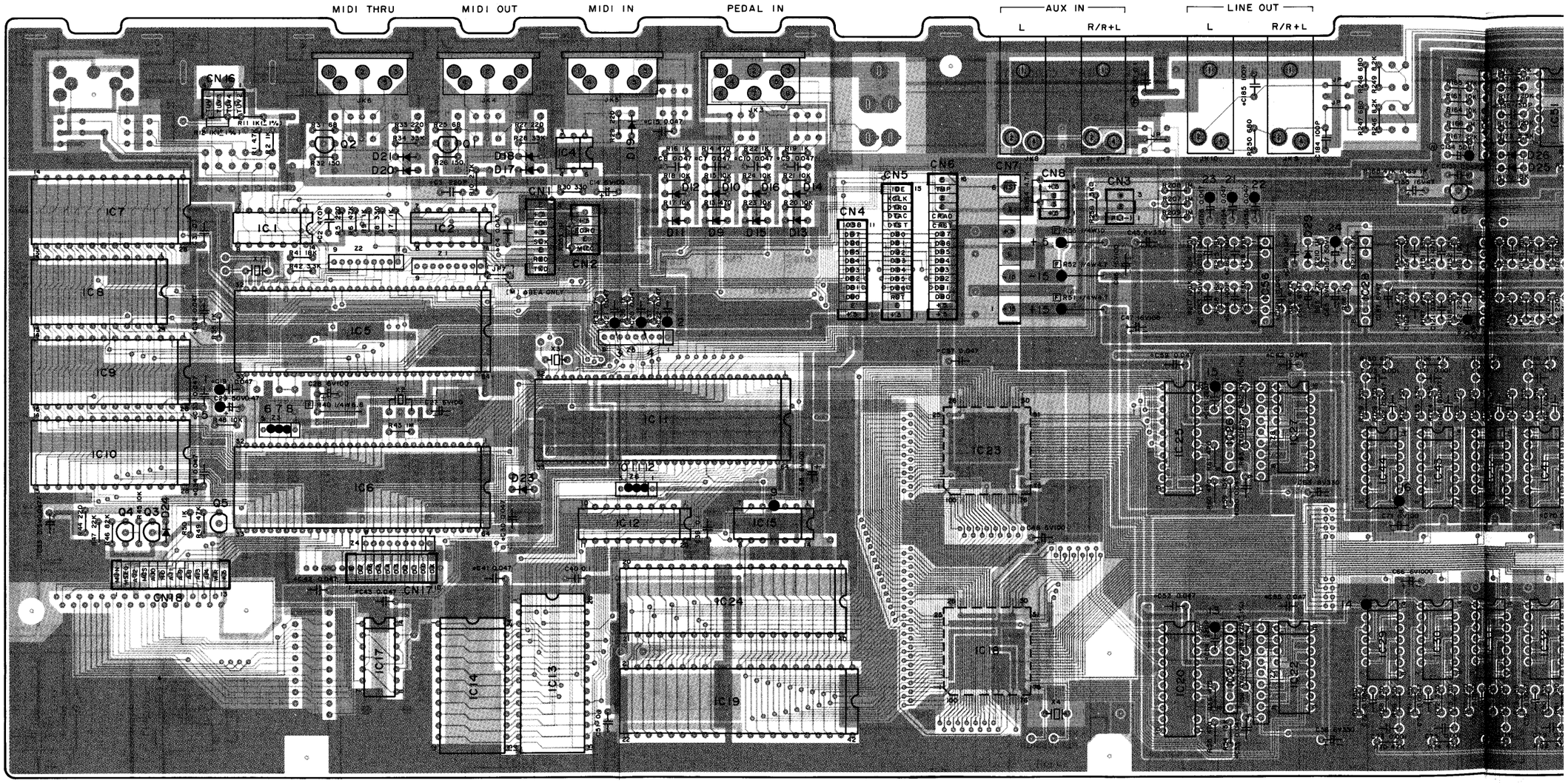
Area	P.C.B. No.	JUMPER WIRE (JP7)
[M]	SXPG145221	○
国内	SXPG145211	×

VR



SXPG144811C

MAIN



❶ TUNE Control

♭ 0V
.....+5V

❷ Tempo Control

♩ =50 .....0V
♩ =300 .....+5V

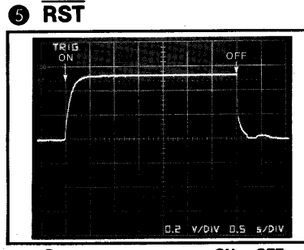
❸ Echo

Min 0V
Max .....+5V

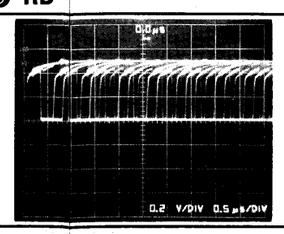
❹ Sustain

OFF 0V
Max .....+5V

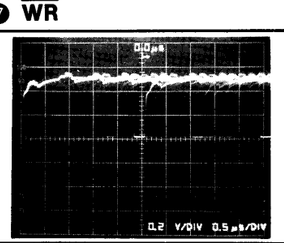
❺ $\overline{RST}$



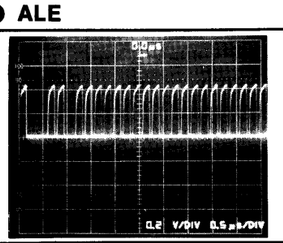
❻ $\overline{RD}$



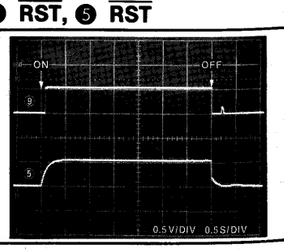
❼ $\overline{WR}$



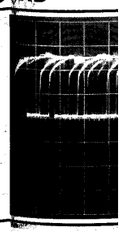
❽ ALE



❾ $\overline{RST}$, ❺ $\overline{RST}$



❿ $\overline{RD}$



• Power.....ON → OFF

• Power.....ON → OFF

ORY CARD CONNECTOR CIRCUIT BAORD

5 6 7 8 9 10 11 12 13 14

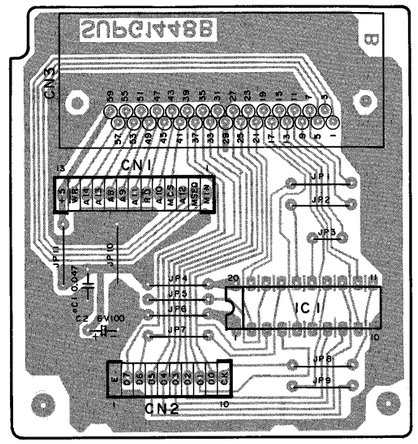
＊P.C.B. Comparision chart

Area	P.C.B. No.	JUMPER WIRE (JP7)
[M]	SXPG145221	○
国 内	SXPG145211	×

• Products for [M] area **SXPG145221**

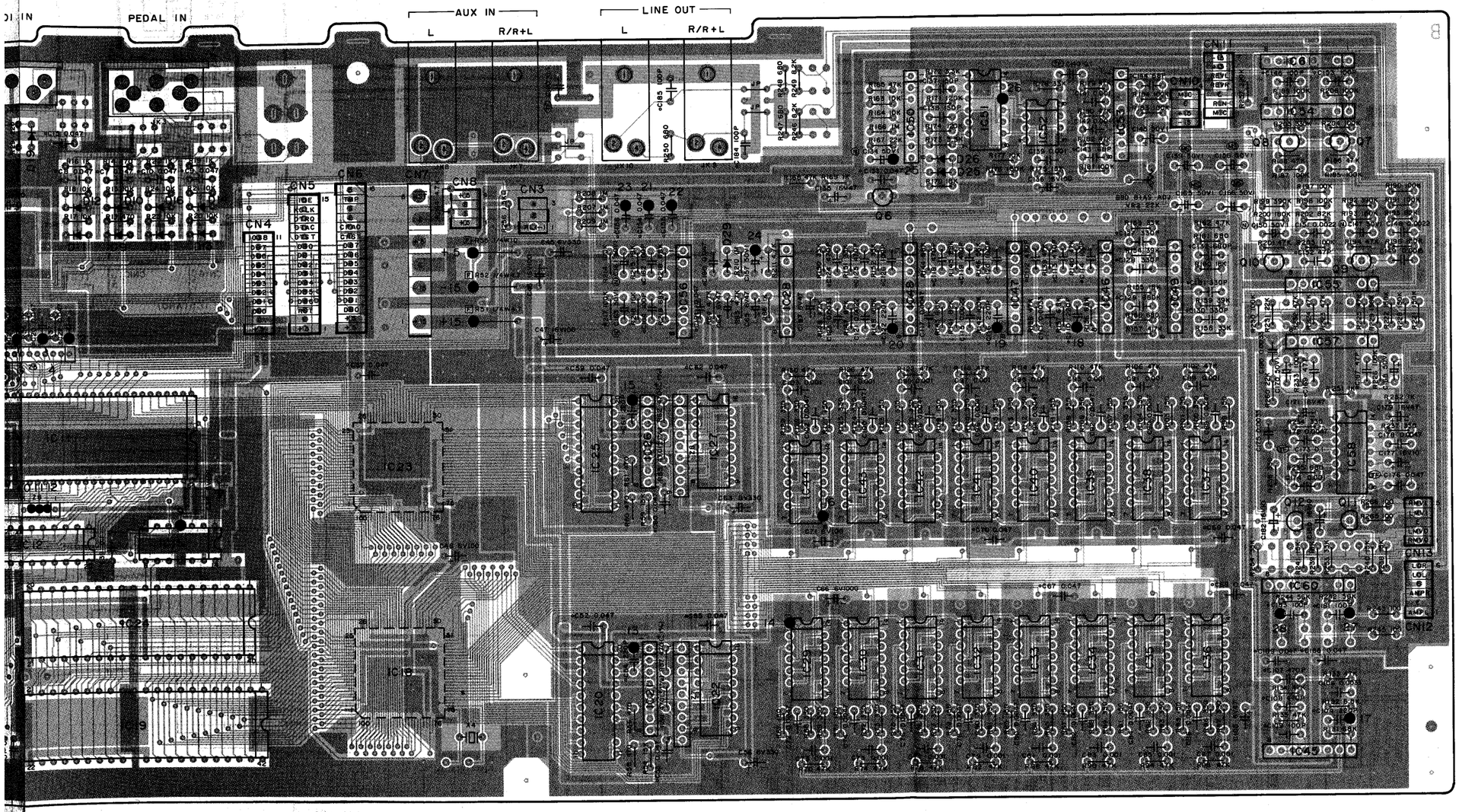
• 国内仕様 **SXPG145211**

MC **SXPG144811B**

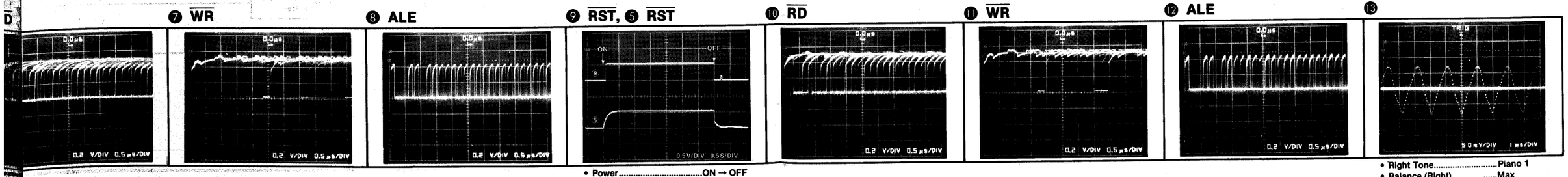


NOTES: MIC
- IC
  - IC1: SVIGTC40H374

NOTES: MAIN
- IC'S
  - IC1: SVIGM74LS07
  - IC2: SVIGM74LS05
  - IC4: SVIGTLP513
  - IC5, 11: SVIG7810HCW
  - IC6: SVIGM603A114
  - IC7: SVIG5PR1AX0
  - IC8, 14: SVIGD446C25
  - IC9, 10: SVIGD446415L
  - IC12: SVIGTC40H373
  - IC13: SVIG2R300BX1
  - IC15: SVIGTC40H004
  - IC17: SVIGTC40H000
  - IC18, 23: MN6635
  - IC19 IC1: SVIGU3C04203
  - IC19 IC2: SVIGU3C04204
  - IC20, 25: SVIGBA9221
  - IC21, 26: SVIGM5238L
  - IC22, 27: SVIGT74H4051
  - IC24: SVIGU3C04165
  - IC28, 45~50, 53~57, 60, 61: SVIGM5218L
  - IC29~44: SVIGM74H4066
  - IC51: SVIGMSM4011
  - IC52: MN3009
  - IC58: SVIGLM1894N
- TRANSISTORS
  - Q1~3, 5: 2SA1015GR
  - Q4, 6: 2SC2320LFG
  - Q7~12: 2SJ105GR
- DIODES
  - D9~21, 23~26, 29: MA165TA5



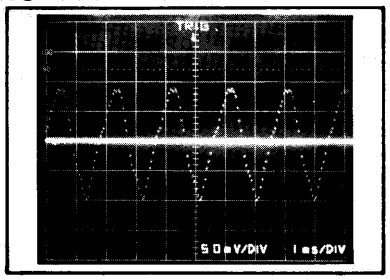
❼ $\overline{WR}$ ❽ ALE ❾ $\overline{RST}$, ❺ $\overline{RST}$ ❿ $\overline{RD}$ ⓫ $\overline{WR}$ ⓬ ALE ⓭



• Power.....ON → OFF

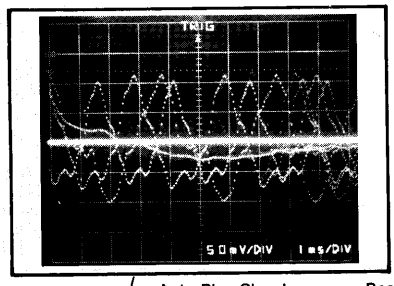
• Right Tone.....Piano 1
• Balance (Right).....Max
• Keyboard.....C_{52}

⑭



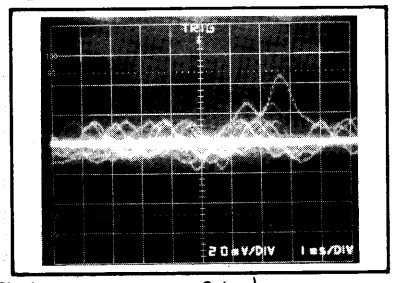
- Right Tone.....Piano 1
- Balance (Right).....Max
- Keyboard.....C_{52}

⑮



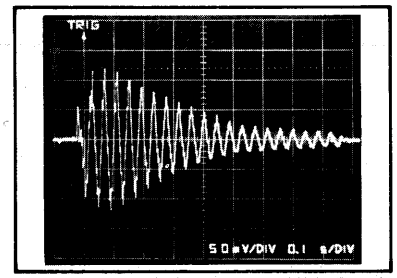
- Auto Play Chord.....Basic
- Bass & Accomp.....3
- Start/Stop.....Start

⑯



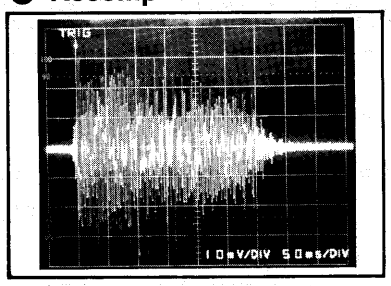
- Rhythm.....Salsa
- Balance (all).....Max
- C key...ON • Tempo... ♩=50

⑰ R/L Tone



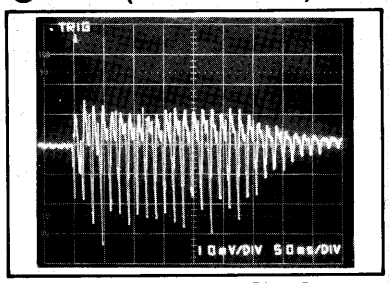
- Right Tone.....Piano 1
- Balance (Right).....Max
- Keyboard.....C_{52}

⑱ Accomp



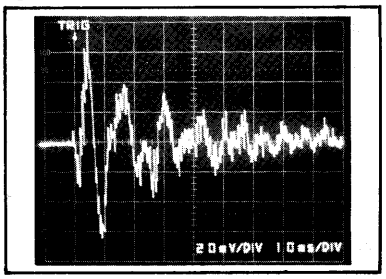
- APC...Basic • Rhythm...Salsa
- Bass & Accomp...3 • Tempo... ♩=50
- Balance (Accomp)...Max • C key...ON
- Start/Stop...Start

⑲ Bass (Electric Bass)



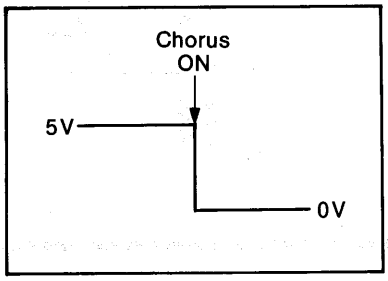
- APC...Basic • Rhythm...Disco I
- Bass & Accomp...2 • Tempo... ♩=50
- Balance (Bass)...Max • C key...ON
- Start/Stop...Start

⑳ Drums

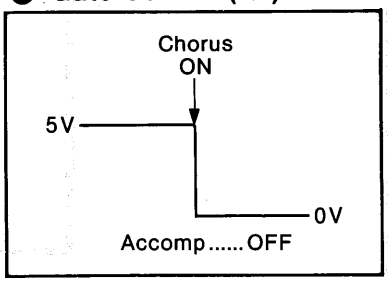


- Rhythm.....March
- Balance (Drums).....Max
- Tempo... ♩=120 • Start/Stop...Start

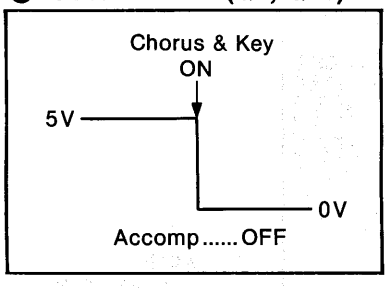
㉑ Gate Control (Q7)



㉒ Gate Control (Q8)



㉓ Gate Control (Q9, Q10)



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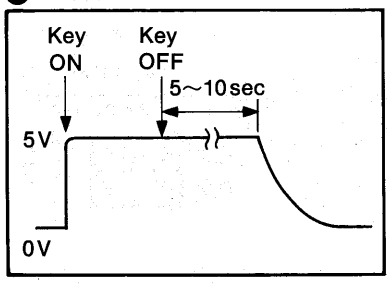

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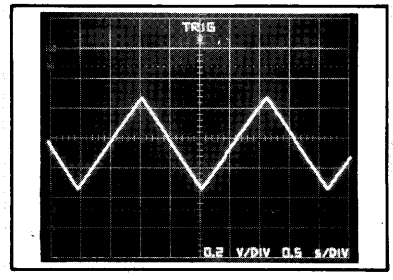

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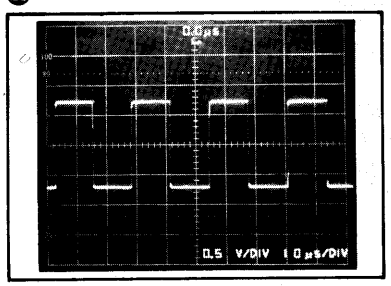

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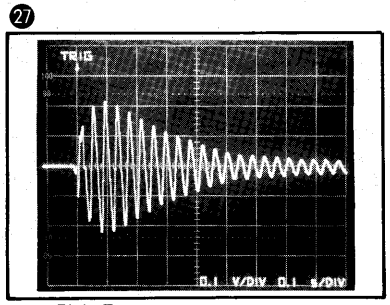
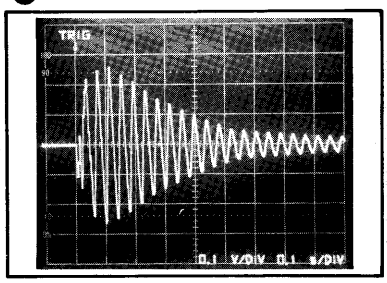


- Right Tone.....Piano 1
- Balance (Right)...Max • Key...C_{52}
- Chorus...OFF • Main Vol....Max

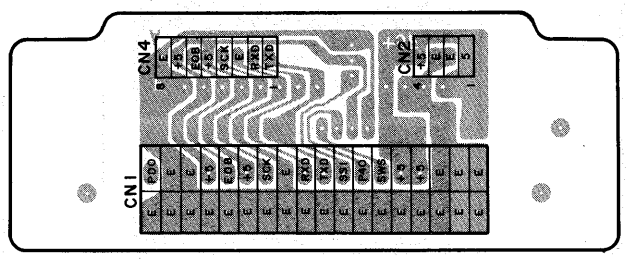
㉘



- Right Tone.....Piano 1
- Balance (Right)...Max • Key...C_{52}
- Chorus...OFF • Main Vol....Max

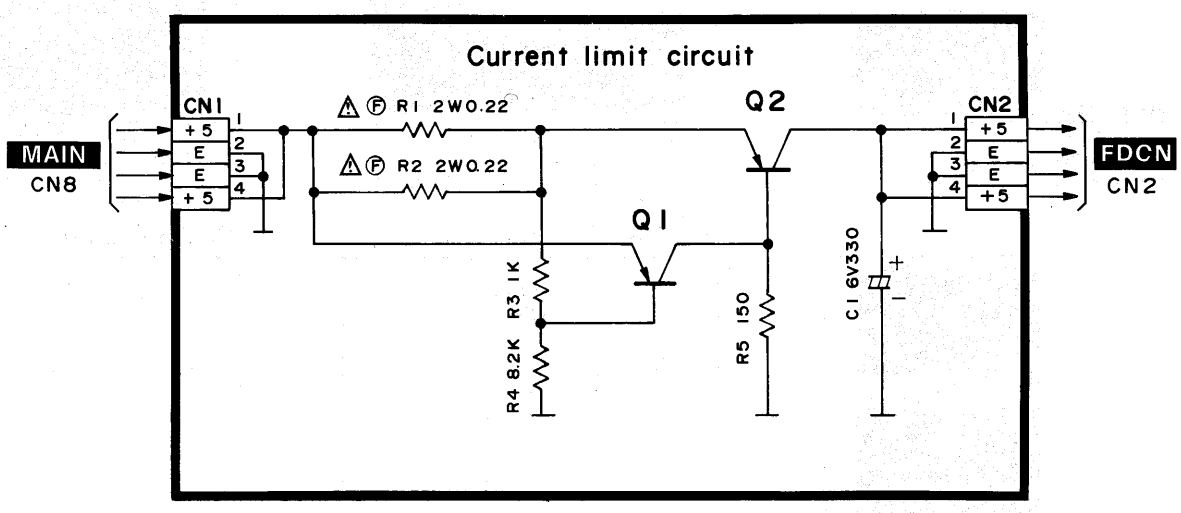
FDCN FD CONNECTOR CIRCUIT BOARD

SXPG141921

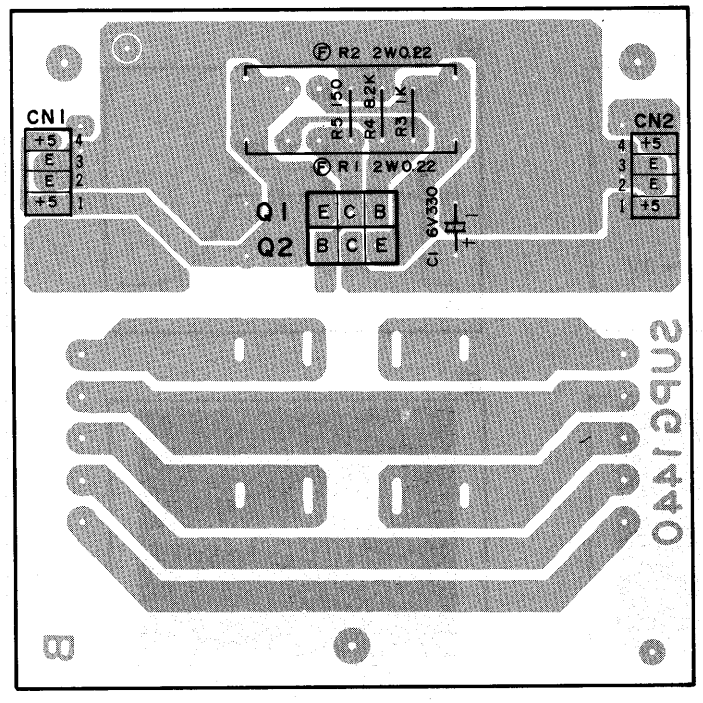


CL & F CURRENT LIMIT CIRCUIT

- CL & F circuit is applied only in U.S.A.



SXPG144011



NOTE:
- TRANSISTORS
  Q1, 2: 2SB941P

CIRCUIT DIAGRAM

DIGITAL DISK RECORDER (SY-FD3)

FDCN

MIC (CN1) MIC (CN2) DRV (CN2) MKB (CN1) CPL (CN1) NW (CN5)

MC MEMORY CARD CIRCUIT

IC1 Address Latch

MEMORY CARD

IC18 Tone Generator LSI

IC5 Microcomputer (Main CPU)

IC11 Microcomputer (Sub CPU)

IC6 Gate Array

IC7 ROM (512 Kbit)

IC8 RAM (16Kbit)

IC9 RAM (64Kbit)

IC10 RAM (64Kbit)

IC13 ROM (256Kbit)

IC14 RAM (16Kbit)

IC12 Address Latch

IC23

IC15-1 IC15-2 IC15-3

IC1-1 IC1-2 IC1-3 IC1-4 IC1-5 IC1-6 IC2-1 IC2-2 IC2-3

IC4 Photo Coupler

Memory Back-up Circuit

PEDAL IN

PEDAL BOX

SOFT SUSTAIN SOSTENUTO

JK3 JK4 MIDI OUT JK5 MIDI IN JK6 MIDI THRU

Q1 Q2 Q3 Q4 Q5

Z1 Z2 Z3 Z4 Z5-1 Z5-2 Z6

X1 15MHz X2 (4MHz) X3 15MHz X4 16MHz

AREA ONLY

MKB (CN1) CPL (CN1) NW (CN5) MIC (CN1)

MC MEMORY CARD CIRCUIT

CHORUS MODULATION CIRCUIT

Microcomputer (Sub CPU)

Memory Back-up Circuit

Level Shifter IC22

Analog Buffer Memory(8ch)

Low-Frequency Oscillator

Clock Generator

BBD (256-stages)

BBD Bias Adj

Signal Selector (Chorus)

• R/L Tone
• Keyboard Percussion (8ch)

Bias Regulator IC28-2

Mixing

Analog Buffer Memory (8 ch)

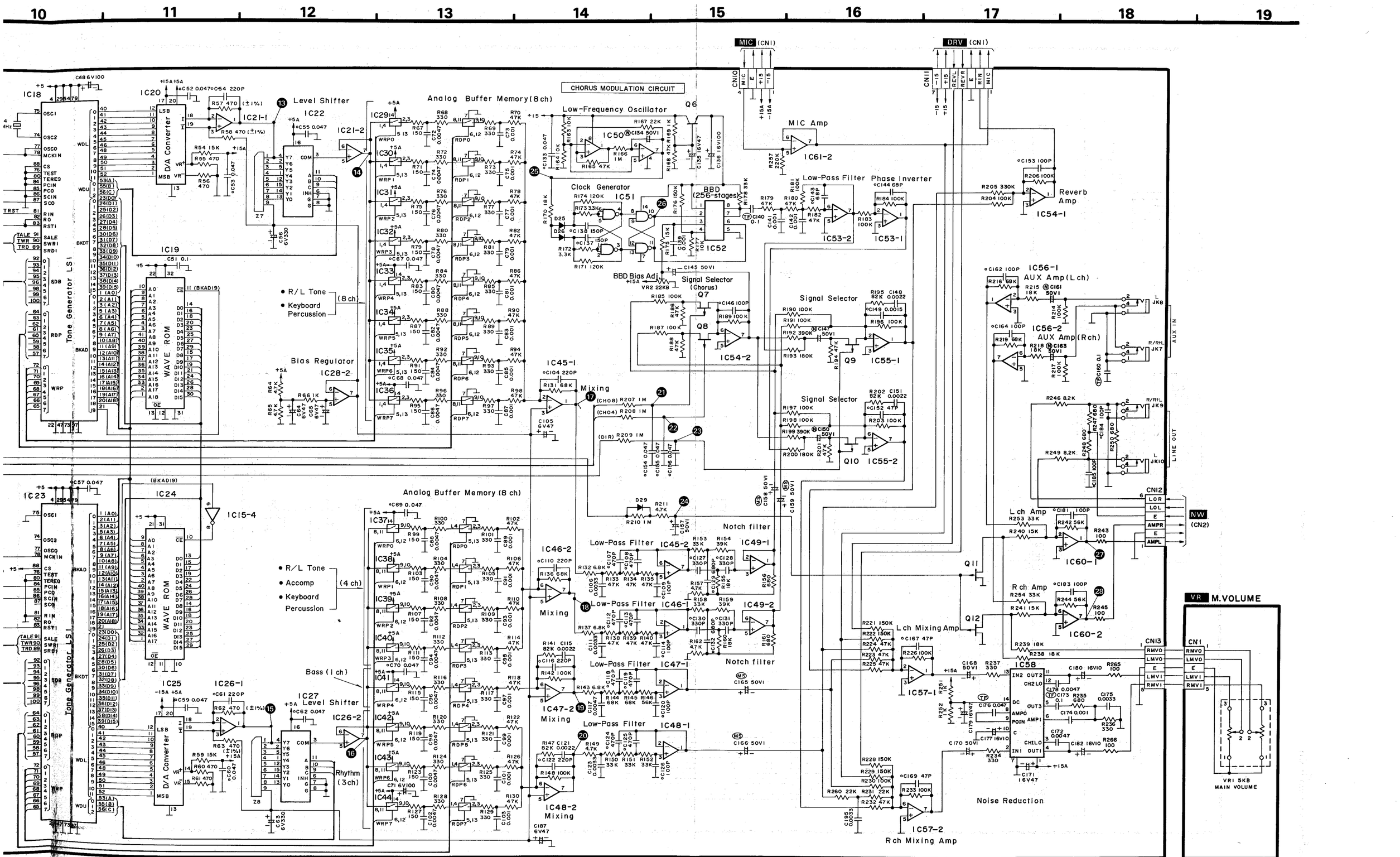
• R/L Tone
• Accomp
• Keyboard Percussion (4ch)

Bass (1ch)

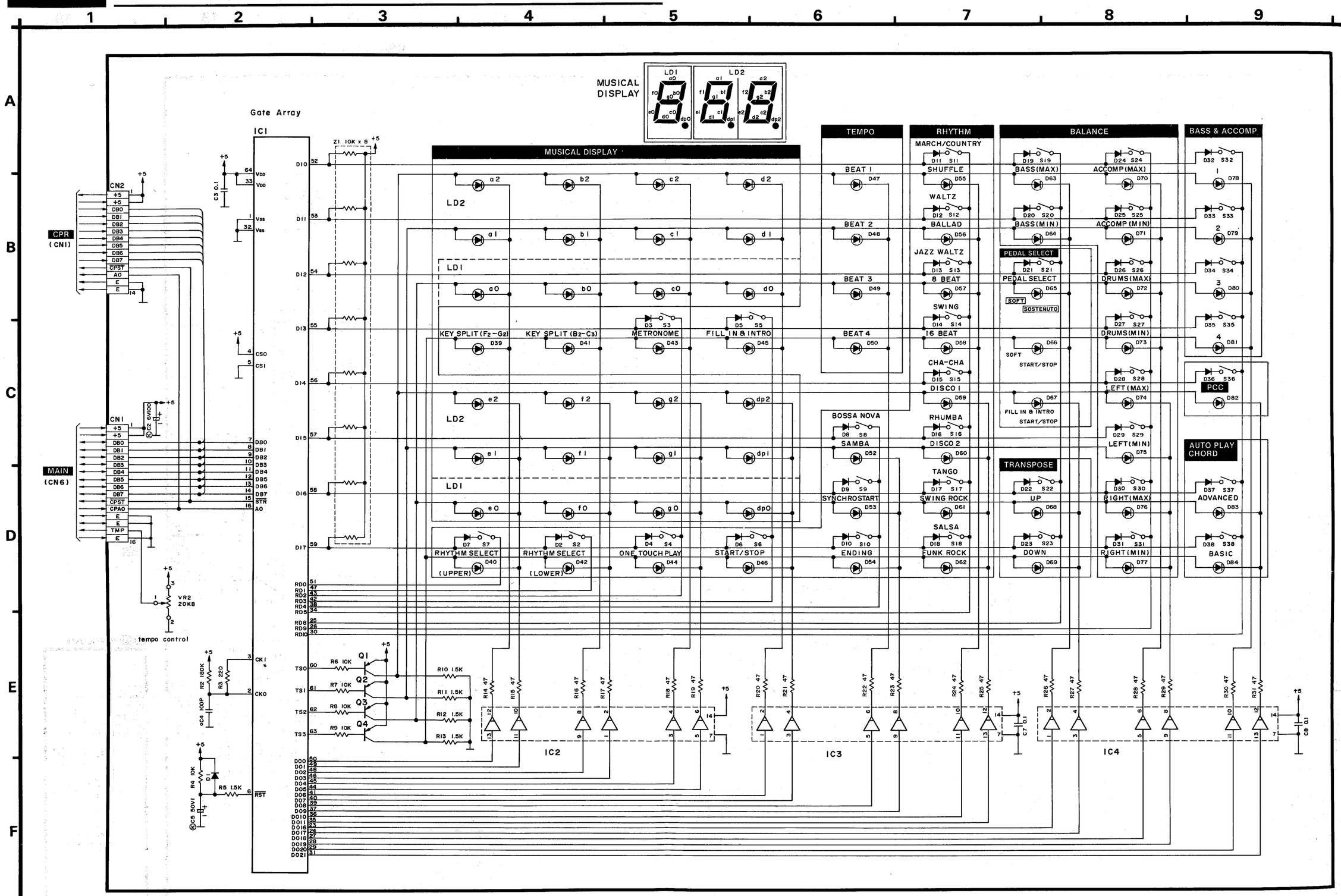
Rhythm (3ch)

Low-Pass Filter

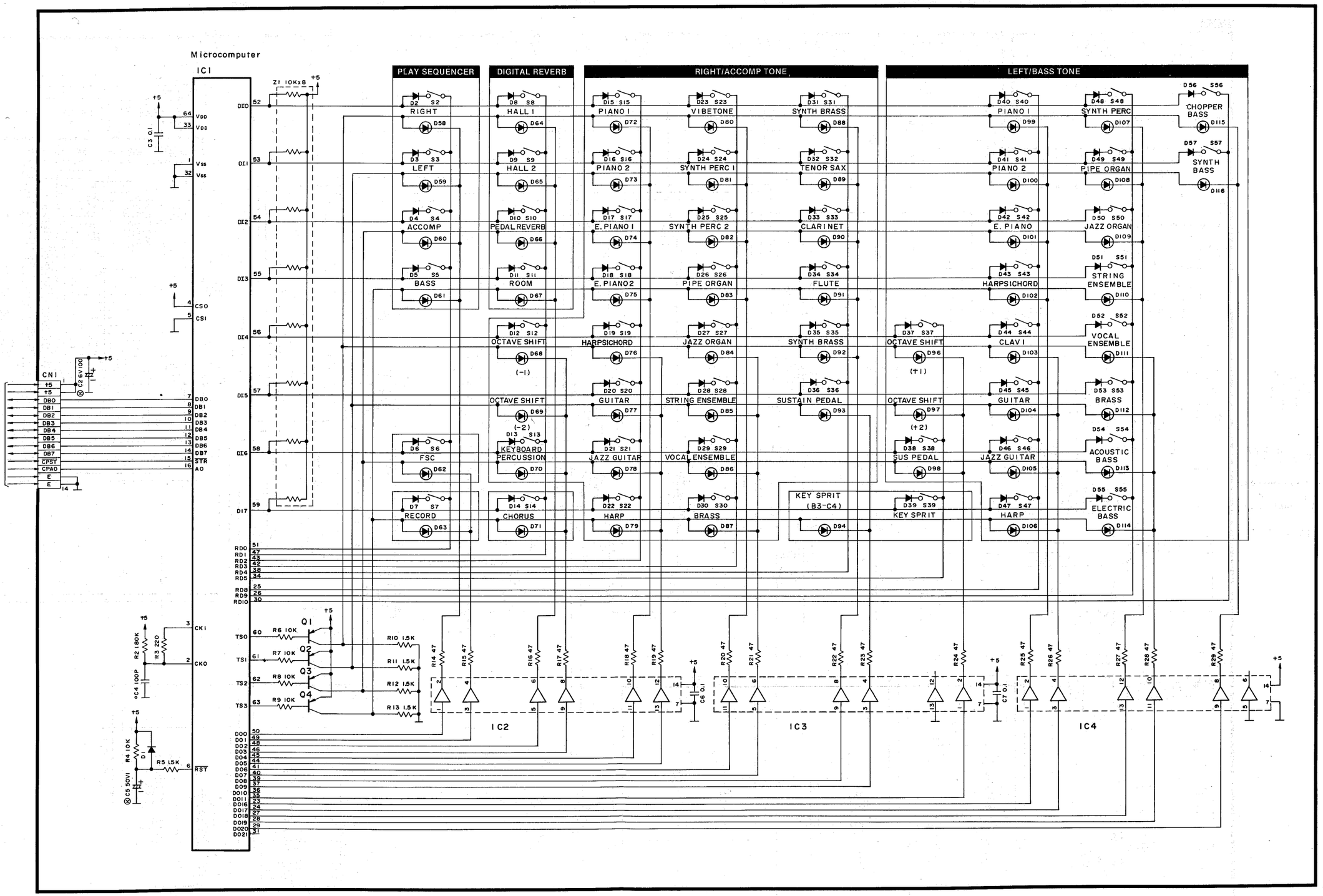
Notch filter


10
11
12
13
14
15
16
17
18
19
CHORUS MODULATION CIRCUIT
MIC (CN1)
DRV (CN1)
IC18
Tone Generator LSI
IC19
WAVE ROM
IC20
D/A Converter
IC21-1
IC21-2
IC22
Level Shifter
IC23
IC24
IC25
IC26-1
IC26-2
IC27
Level Shifter
IC28-2
Bias Regulator
IC15-4
Analog Buffer Memory (8ch)
Analog Buffer Memory (8 ch)
Low-Frequency Oscillator
IC50
IC51
Clock Generator
IC52
BBD (256-stages)
BBD Bias Adj.
Signal Selector (Chorus)
Q6
Q7
Q8
IC54-2
Signal Selector
Q9
IC55-1
Q10
IC55-2
MIC Amp
IC61-2
Low-Pass Filter
Phase Inverter
IC53-2
IC53-1
Reverb Amp
IC54-1
IC56-1
AUX Amp(Lch)
IC56-2
AUX Amp(Rch)
IC45-1
IC45-2
IC46-1
IC46-2
IC47-1
IC47-2
IC48-1
IC48-2
IC49-1
IC49-2
Notch filter
Mixing
IC58
Noise Reduction
Lch Mixing Amp
IC57-1
Rch Mixing Amp
IC57-2
Lch Amp
IC60-1
Rch Amp
IC60-2
VR M.VOLUME
VR1 5KB MAIN VOLUME
• R/L Tone
• Keyboard Percussion
(8 ch)
• R/L Tone
• Accomp
• Keyboard Percussion
(4 ch)
Rhythm (3ch)
Bass (1 ch)
(CH08) R207 1M
(CH04) R208 1M
(DIR) R209 1M
AUX IN
LINE OUT
NW (CN2)

CPL CONTROL PANEL LEFT CIRCUIT DIAGRAM

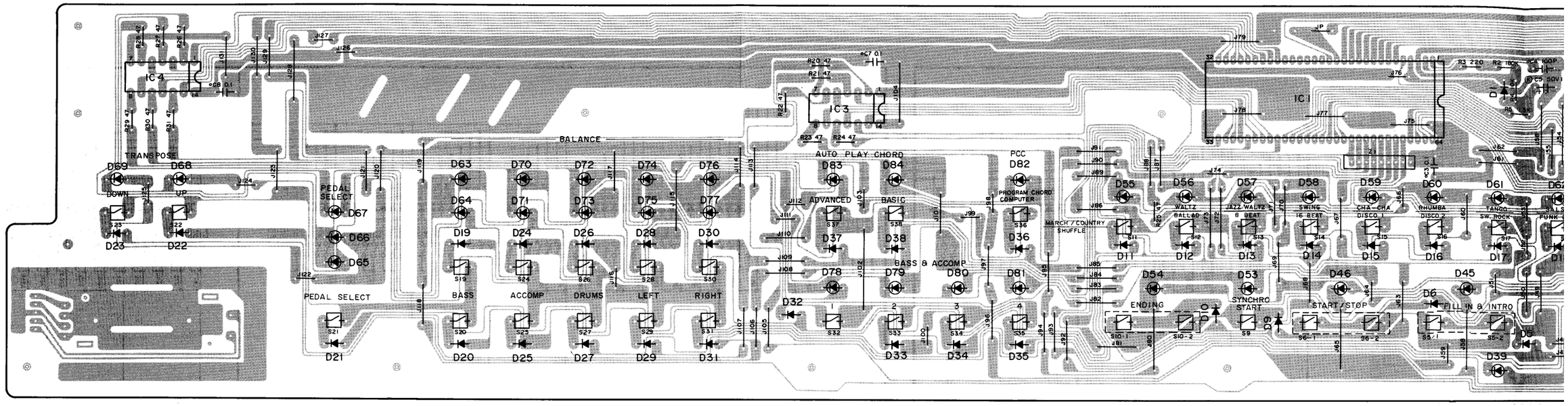


CONTROL PANEL RIGHT CIRCUIT DIAGRAM

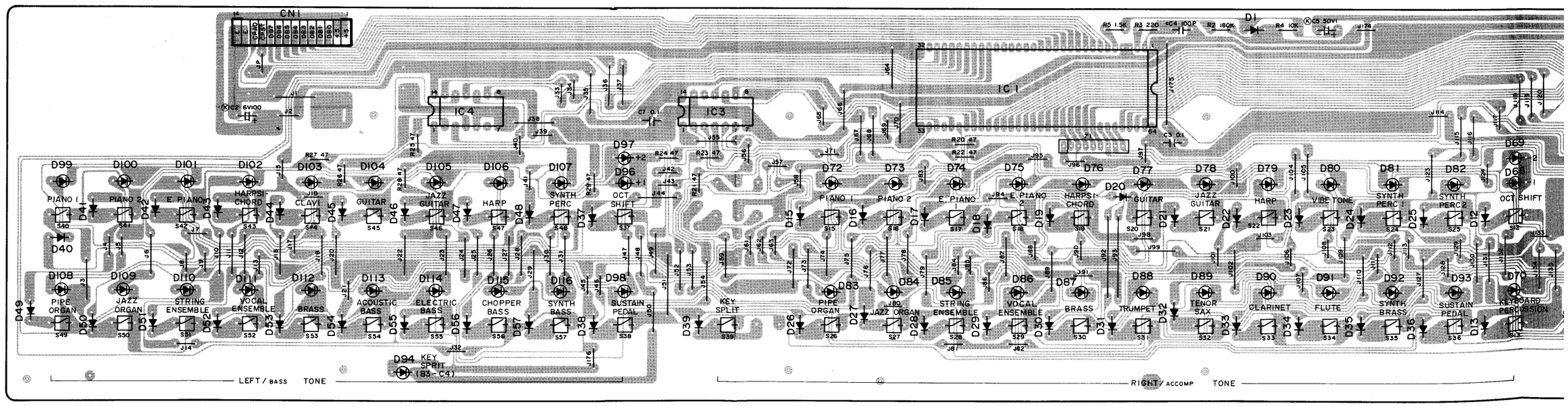


CPL CPR CONTROL PANEL LEFT, RIGHT CIRCUIT BOARD

CPL

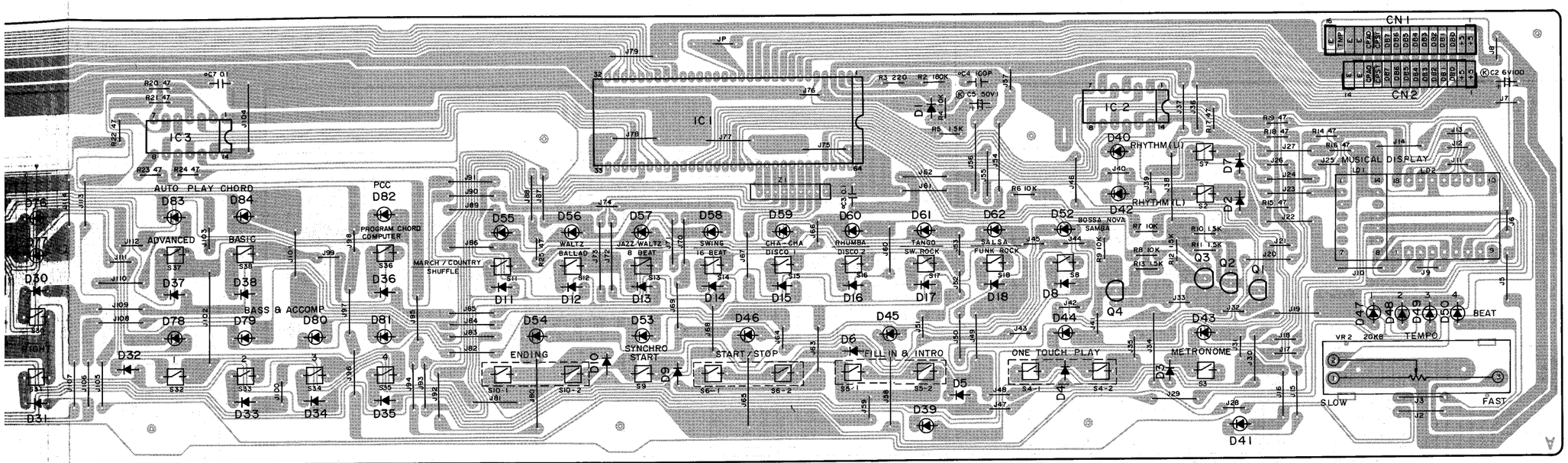


CPR



5 6 7 8 9 10 11 12 13 14

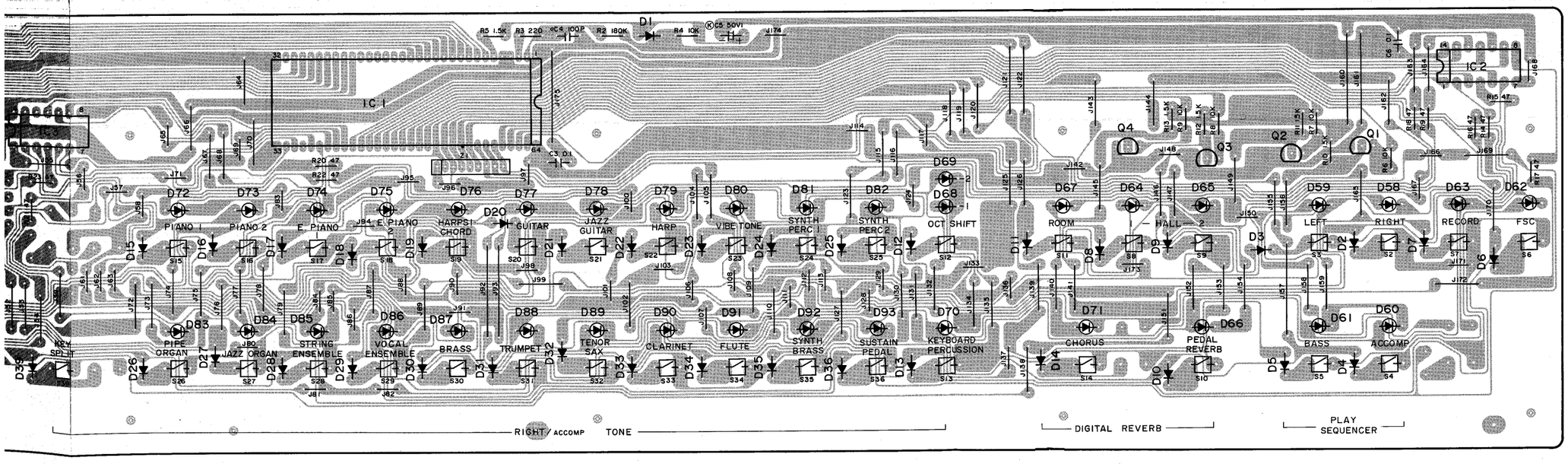
SXPG142121A



NOTES:

- IC'S
  - IC1: SVIGM603A121
  - IC2~4: SVIGM74LS07
- TRANSISTORS
  - Q1~4: 2SA830SB
- DIODES
  - D1~38: MA165TA5
  - D39~47, 52~81, 83, 84: LN282R
  - D48~50, 82: LN382G
- DISPLAYS
  - LD1: LN514RA
  - LD2: LN524RA

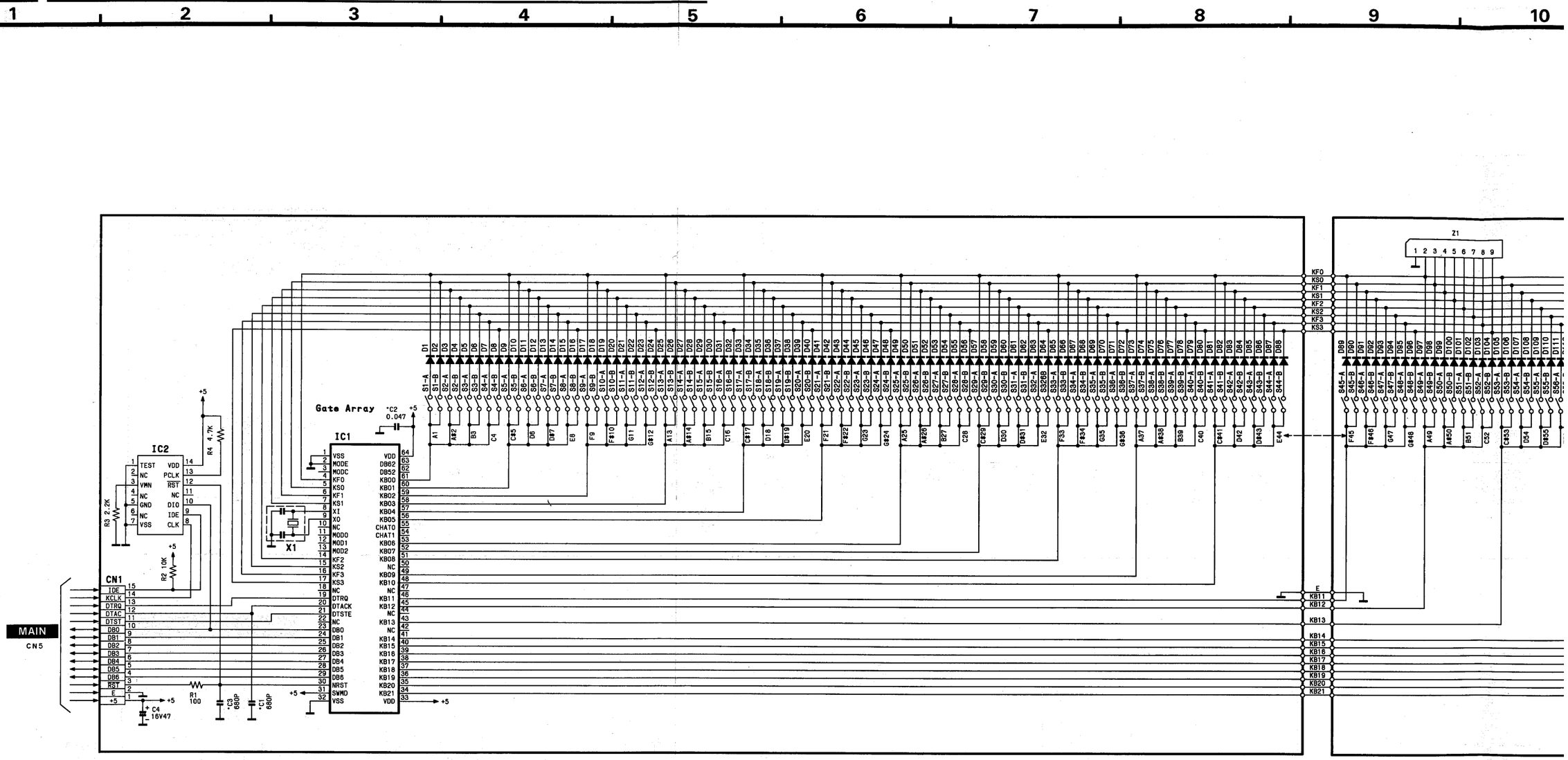
SXPG142111B



NOTES:

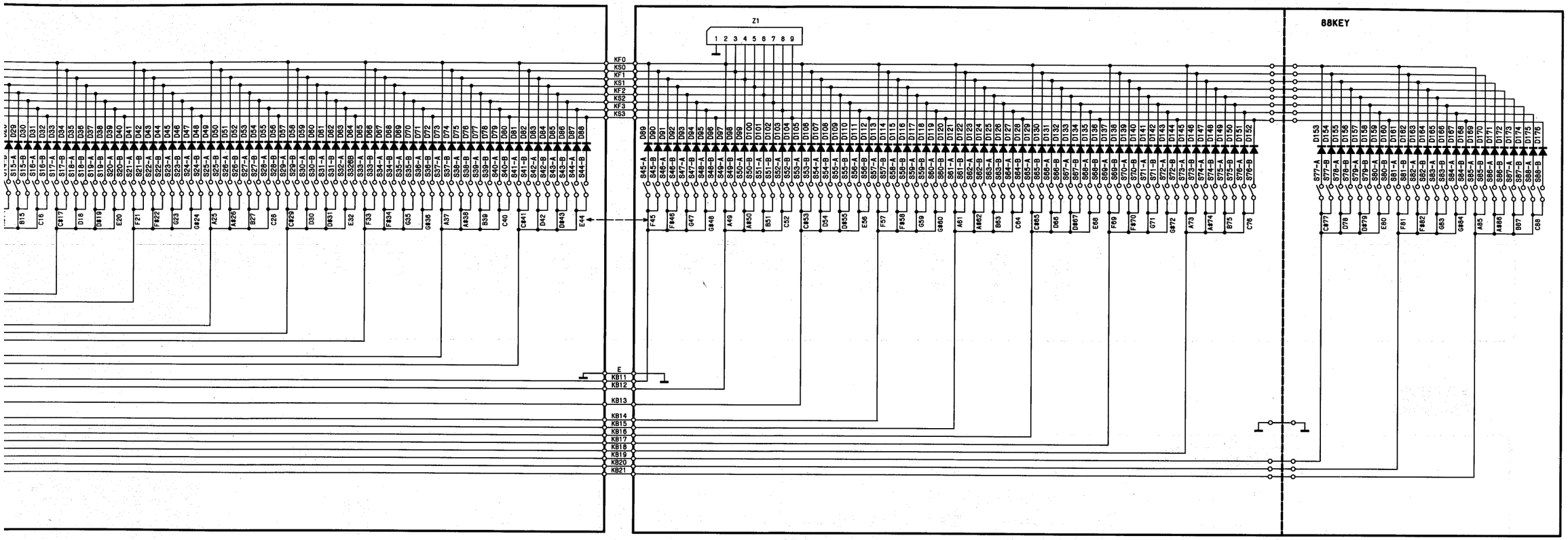
- IC'S
  - IC1: SVIGM603A121
  - IC2~4: SVIGM74LS07
- TRANSISTORS
  - Q1~4: 2SA830SB
- DIODES
  - D1~57: MA165TA5
  - D58~63: LN382G
  - D64~94, 96~116: LN282R

MKB MANUAL KEYBOARD CIRCUIT DIAGRAM



NOTES:

- IC'S
  - IC1: MN50020PGV
  - IC2: not supplied
- DIODES
  - D1～176: MA162A



NOTES:

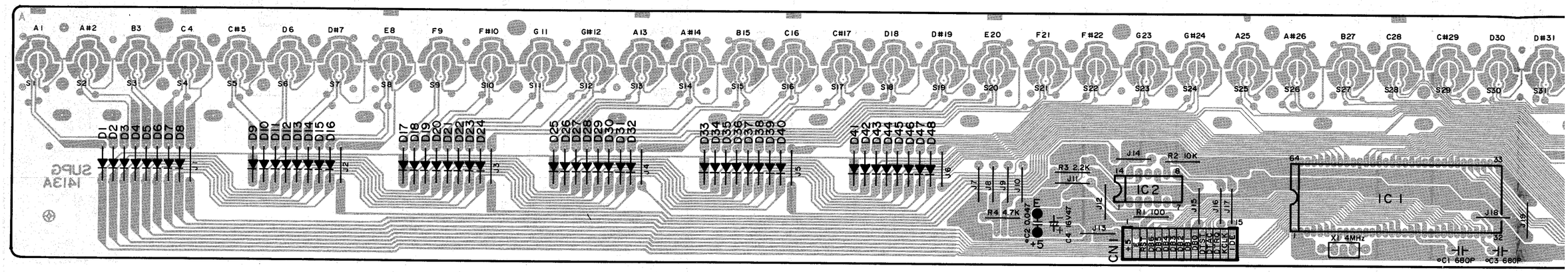
- IC'S
  - IC1: MN50020PGV
  - IC2: not supplied
- DIODES
  - D1~176: MA162A

MKB MANUAL KEYBOARD CIRCUIT BOARD

■ The repair of the keyboard PCB and key switches.

The keyboards on the SX-PR1 employ an operating system which is unique to each unit. This system insures touch response accuracy.
To maintain that accuracy, please note the following points when repairing the keyboard:

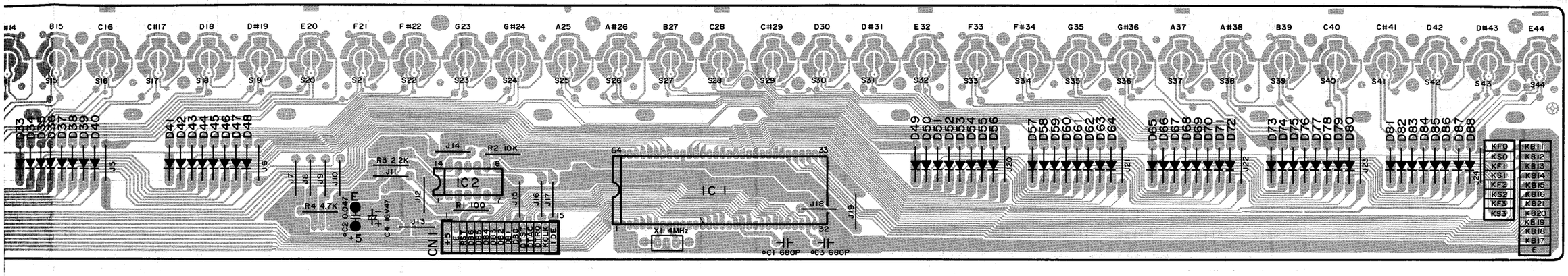
1. When repairing the Rubber Contact Switches:
   SSPG6003A (6 pcs on one)
   SSPG7003A (7 pcs on one)
   A. It is necessary to replace all of these switches if one of them becomes defective. (The replacement parts are selected for accuracy of touch response.)
   B. Cut Jumper 15 on the Manual Keyboard P.C.B. to disconnect the Data ROM. (It is not necessary with the higher tolerance switches.)
2. If the Manual Keyboard P.C.B. needs to be replaced, due to physical damage, it is necessary to replace both keyboard P.C.B's at the same time.
3. The Data ROM (IC2) is matched to Rubber Contact Switches/P.C.B. combination and is not available separately. If this part should become defective cut jumper 15 or remove the part. To insure touch response accuracy it may be necessary to replace the Rubber Contact Switches. (See Step 1)
4. If the Manual Keyboard microprocessor (IC1) is defective, it can replaced with a unit from parts. No special considerations are necessary.

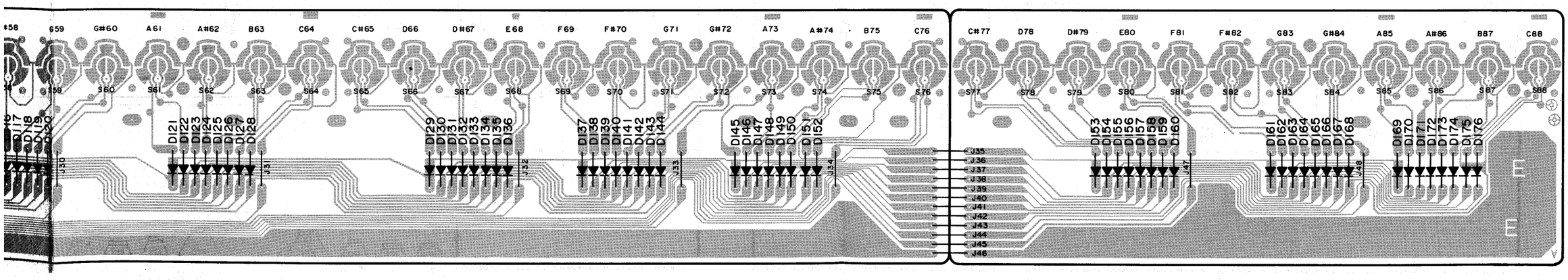


NOTES:
- IC'S
  IC1: MN50020PGV
  IC2: not supplied
- DIODES
  D1~176: MA162A

2. If the Manual Keyboard P.C.B. needs to be replaced, due to physical damage, it is necessary to replace both keyboard P.C.B's at the same time.
3. The Data ROM (IC2) is matched to Rubber Contact Switches/P.C.B. combination and is not available separately. If this part should become defective cut jumper 15 or remove the part. To insure touch response accuracy it may be necessary to replace the Rubber Contact Switches. (See Step 1)
4. If the Manual Keyboard microprocessor (IC1) is defective, it can replaced with a unit from parts. No special considerations are necessary.

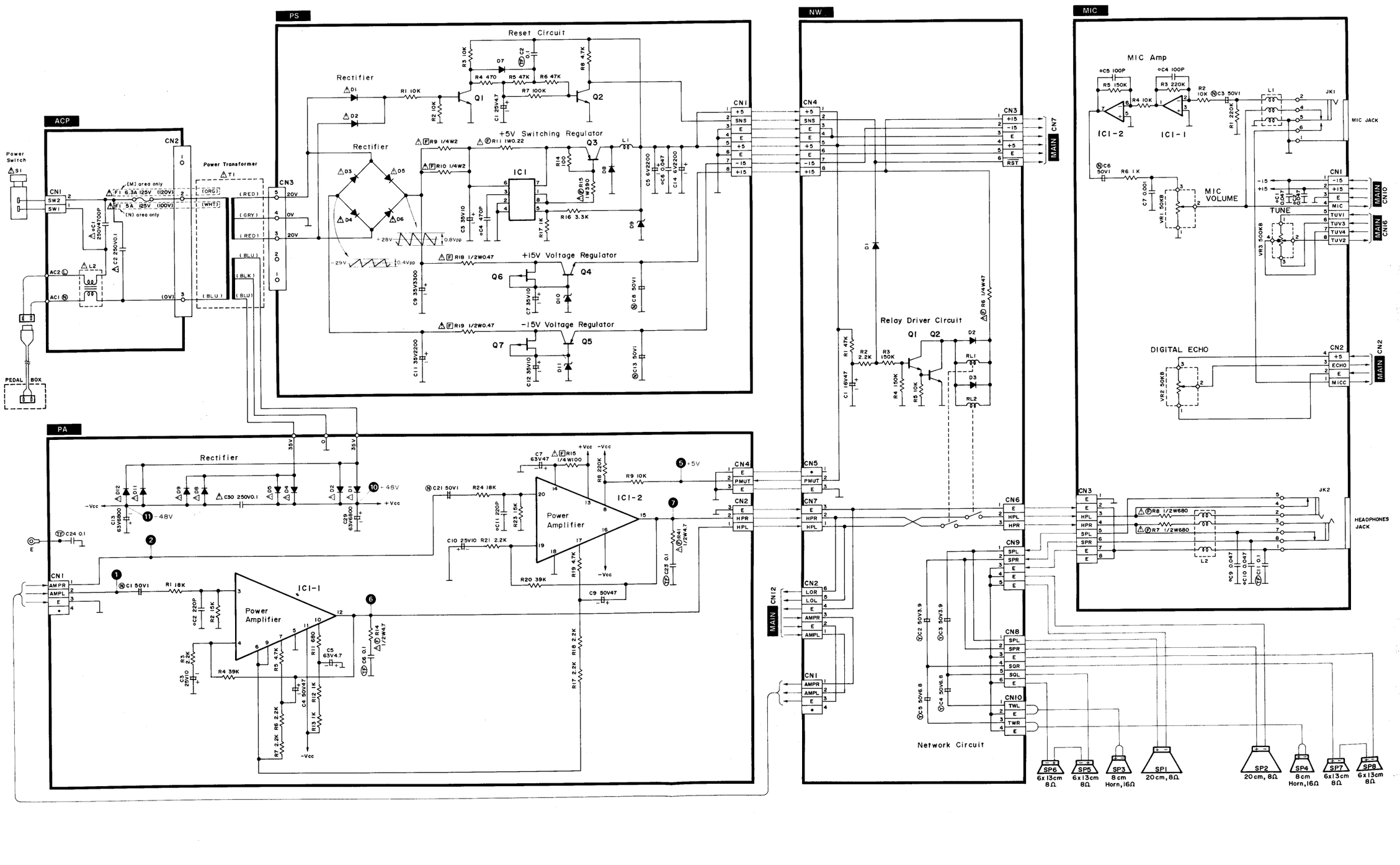
SXPG141311

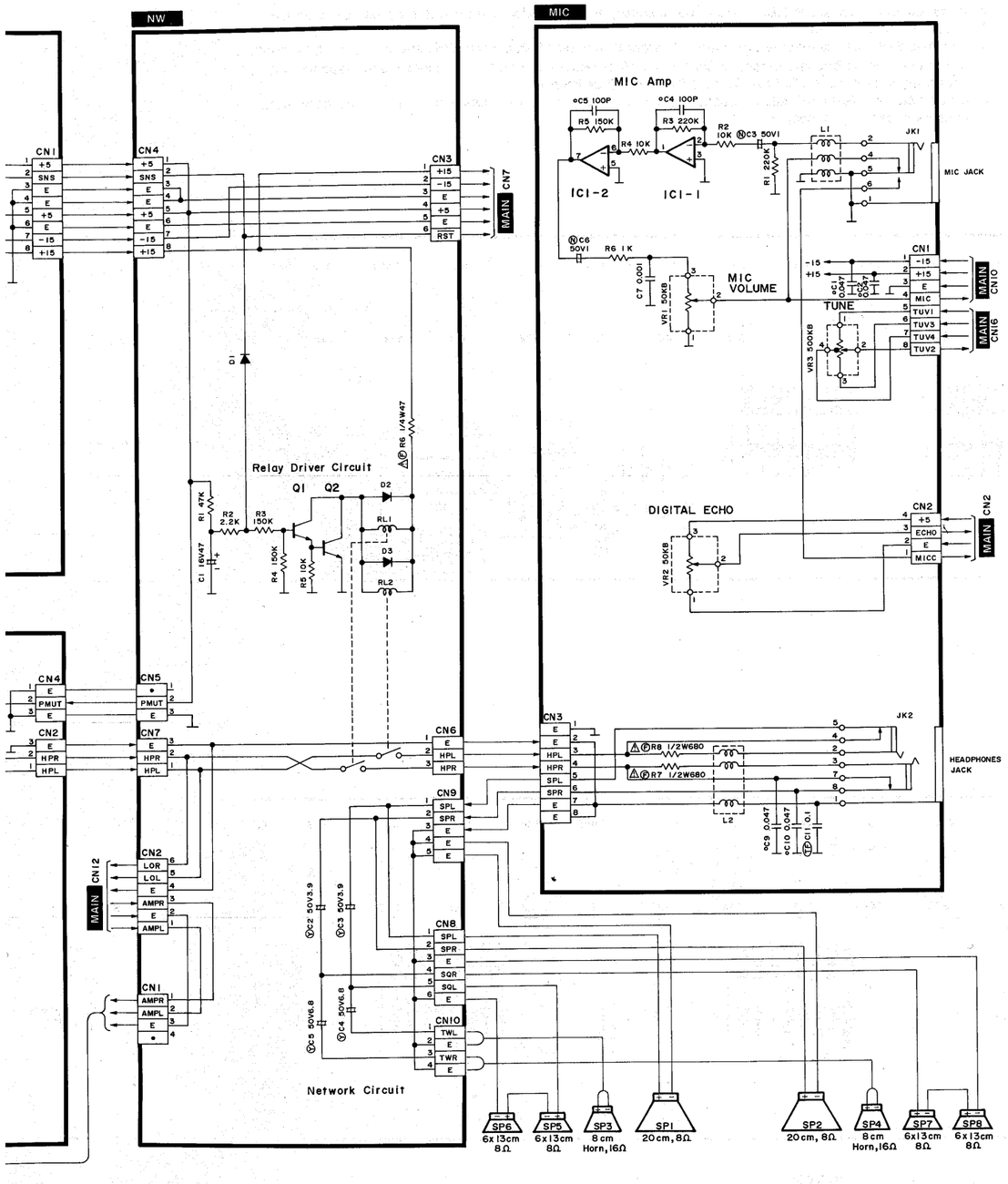




NOTES:

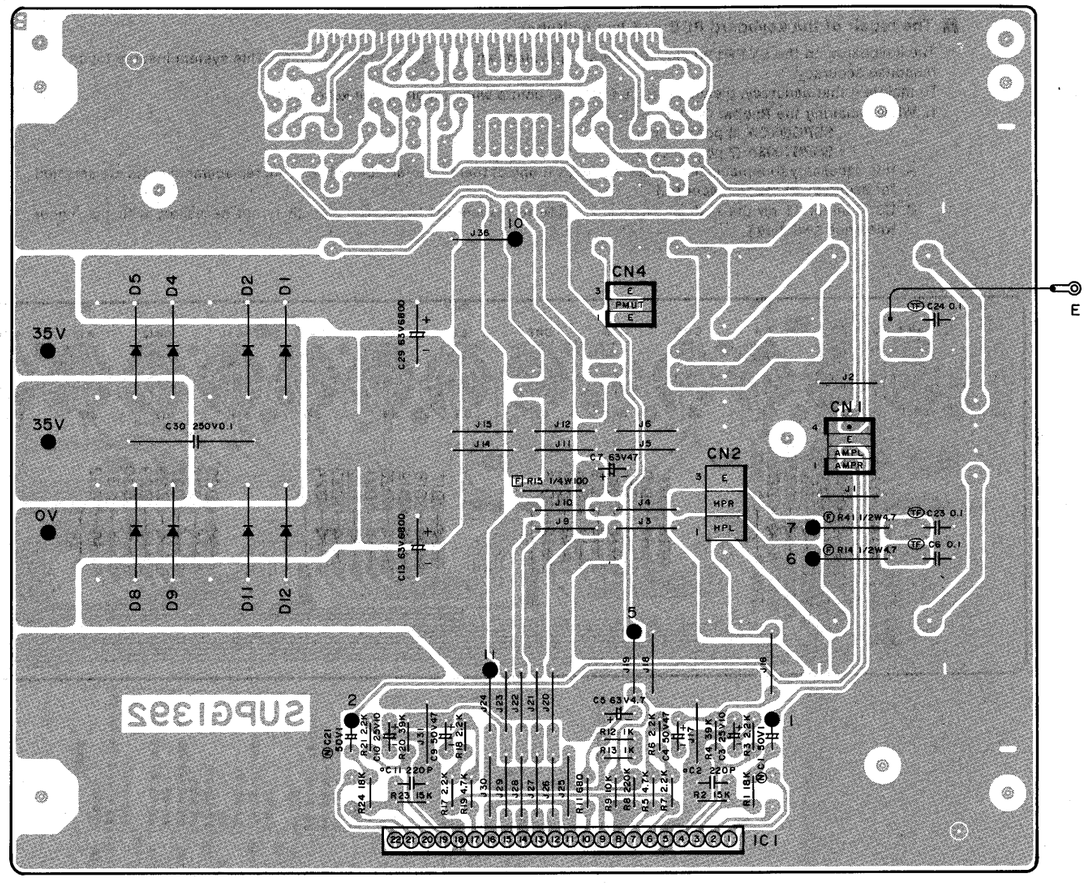
- IC'S
  - IC1: MN50020PGV
  - IC2: not supplied
- DIODES
  - D1~176: MA162A


PS
Reset Circuit
Rectifier
+5V Switching Regulator
+15V Voltage Regulator
-15V Voltage Regulator
ACP
Power Switch
Power Transformer
PEDAL BOX
NW
Relay Driver Circuit
Network Circuit
MIC
MIC Amp
MIC VOLUME
TUNE
DIGITAL ECHO
MIC JACK
HEADPHONES JACK
PA
Rectifier
Power Amplifier
SP6 6x13cm 8Ω
SP5 6x13cm 8Ω
SP3 8cm Horn,16Ω
SP1 20cm,8Ω
SP2 20cm,8Ω
SP4 8cm Horn,16Ω
SP7 6x13cm 8Ω
SP8 6x13cm 8Ω



PA POWER AMPLIFIER CIRCUIT BOARD

SXPG139251



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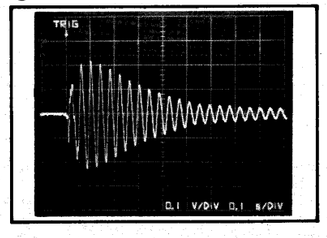


■ Measuring Conditons

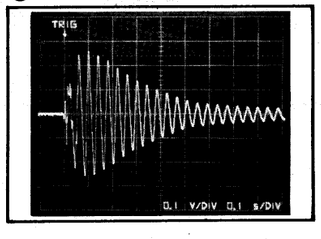
- Right Tone .....Piano 1
- Balance (Right).....Max.
- Main Volume.....Max.
- Keyboard.....C_{52}

PA

NOTES:

- IC'S
  IC1: SVIGS4221M2M
- DIODES
  D1, 2, 4, 5, 8, 9, 11, 12: SVDS3V20-15

❷



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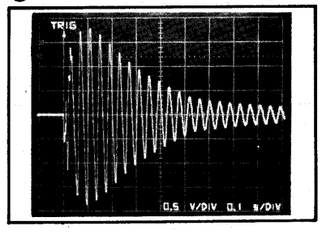

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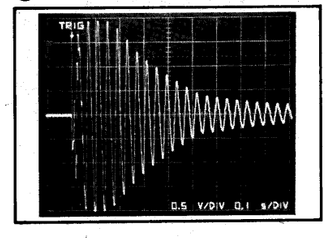
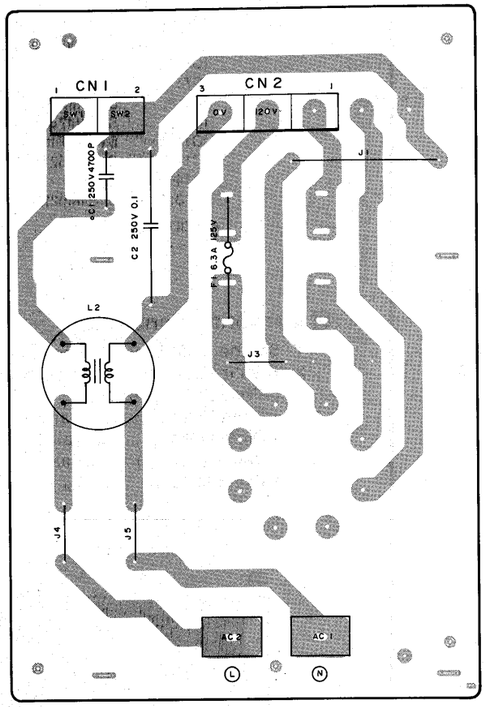


ACP PS POWER SUPPLY CIRCUIT BOARD

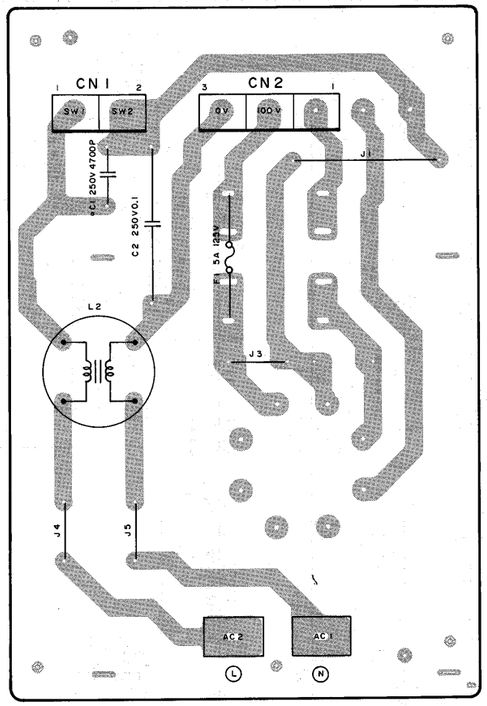
ACP AC POWER SUPPLY CIRCUIT BOARD

• Products for [M] area **SXPG145421**



• FUSE F1: XBA1C63NU100

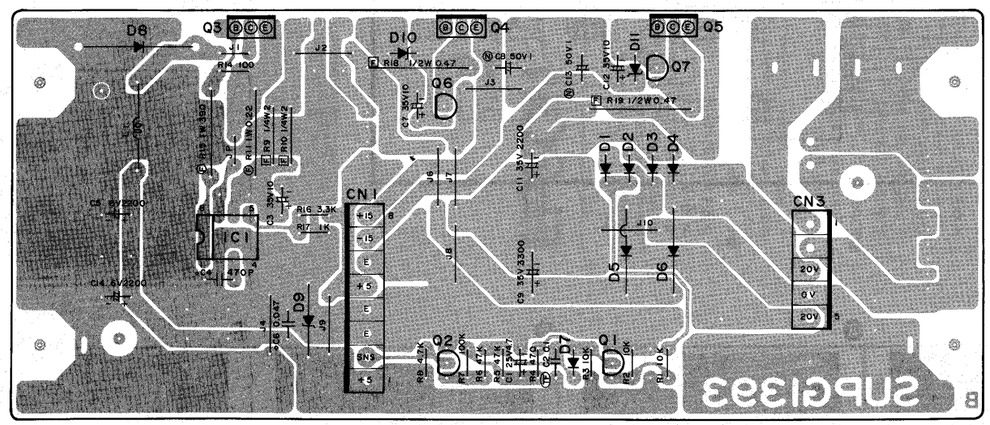
• 国内仕様 **SXPG145411**



• FUSE F1: XBA1C50NS5

PS POWER SUPPLY CIRCUIT BOARD

SXPG139371



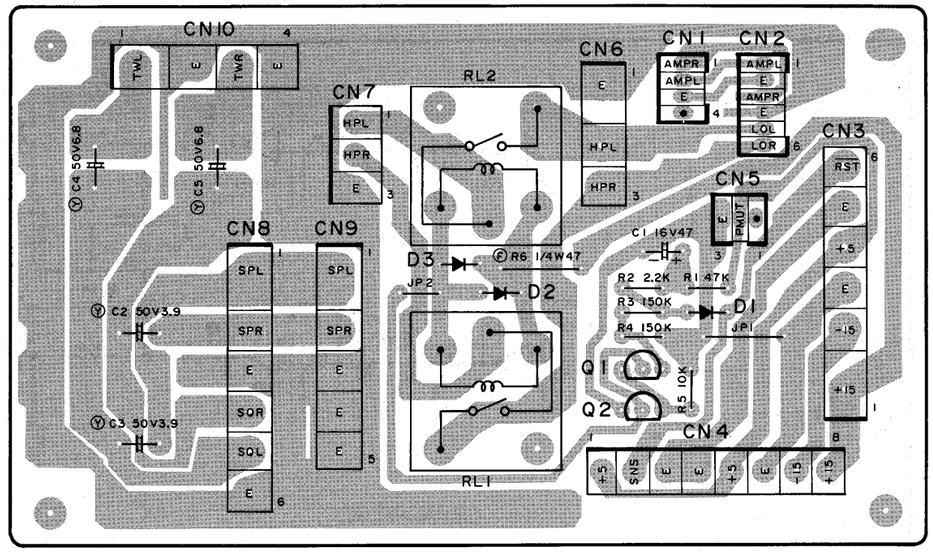
NOTES:

- IC'S
  - IC1: SVIGM5291P
- TRANSISTORS
  - Q1, 2: 2SC2320LFG
  - Q3: 2SB953AQP
  - Q4: 2SD1277A
  - Q5: 2SB951A
  - Q6, 7: 2SJ105GR
- DIODES
  - D1~4: SVDGERA1502Y
  - D5, 6: SVDS2V20
  - D7: MA165TA5
  - D8: SVDGERC9102
  - D9: MA2062LF
  - D10, 11: MA4160

NW MIC NETWORK, MICROPHONE CIRCUIT BOARD

NW NETWORK CIRCUIT BOARD

SXPG144811D

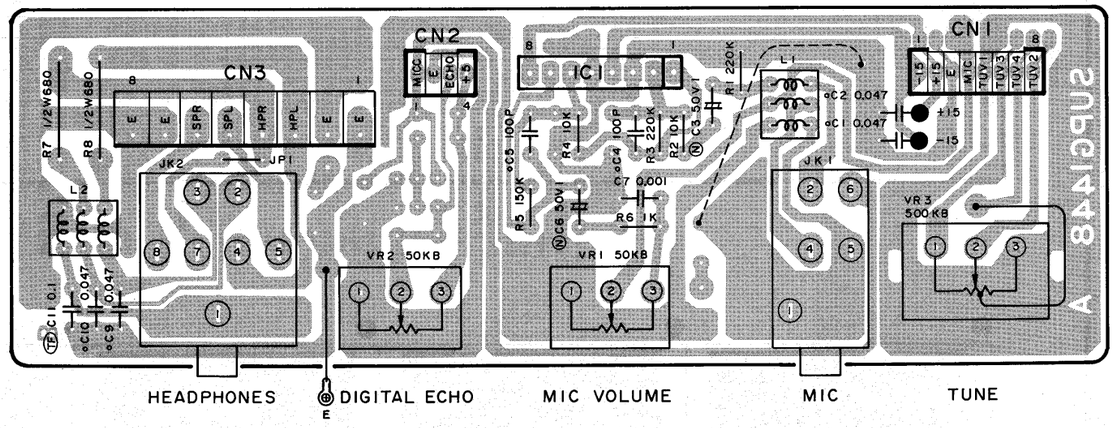


NOTES:

- TRANSISTORS
  - Q1, 2: 2SC2320LFG
- DIODES
  - D1~3: MA165TA5

MIC MICROPHONE CIRCUIT BOARD

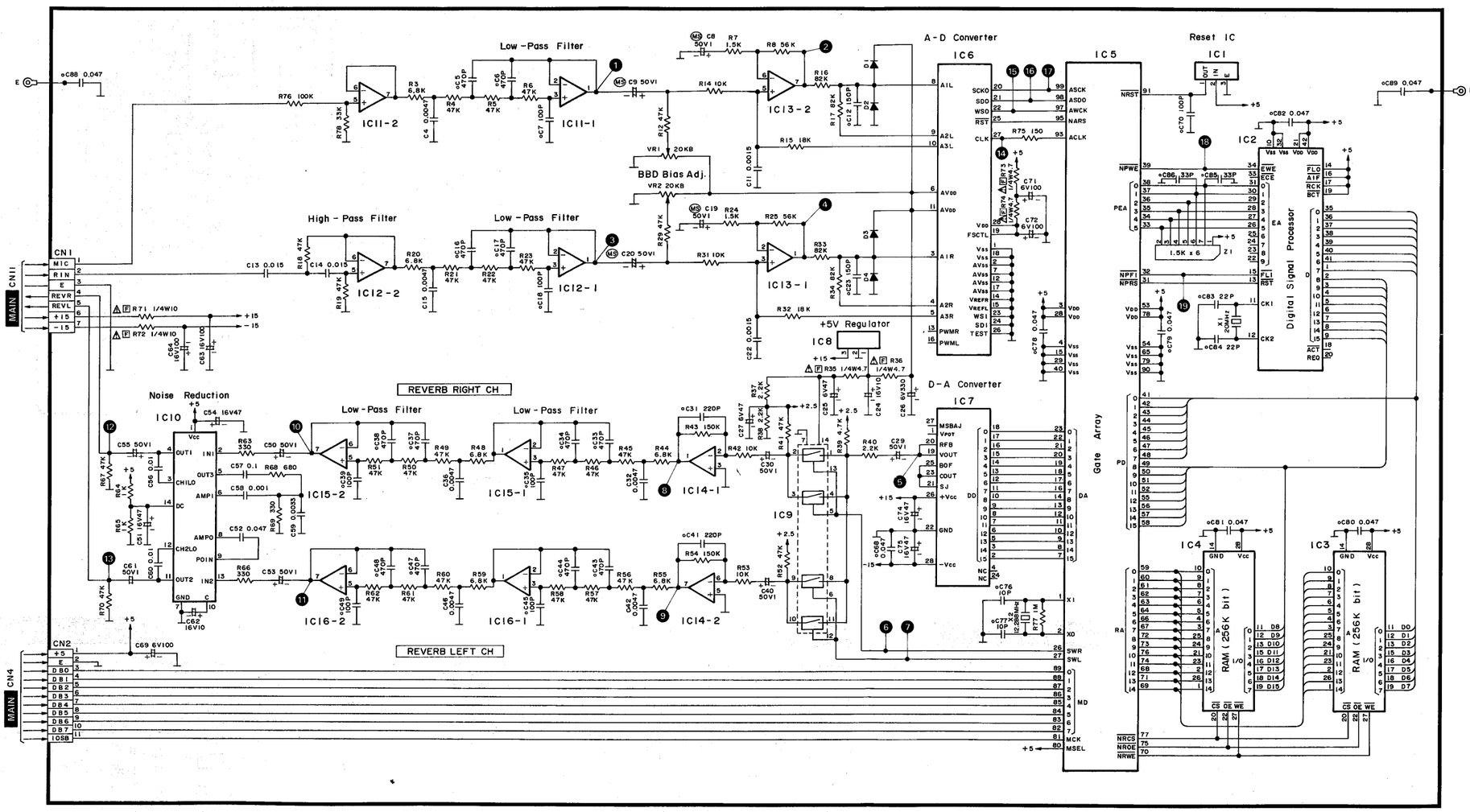
SXPG144811A



NOTE:

- IC
  - IC1: SVIGM5218L

DRV DIGITAL REVERB CIRCUIT DIAGRAM



NOTES:

- IC'S

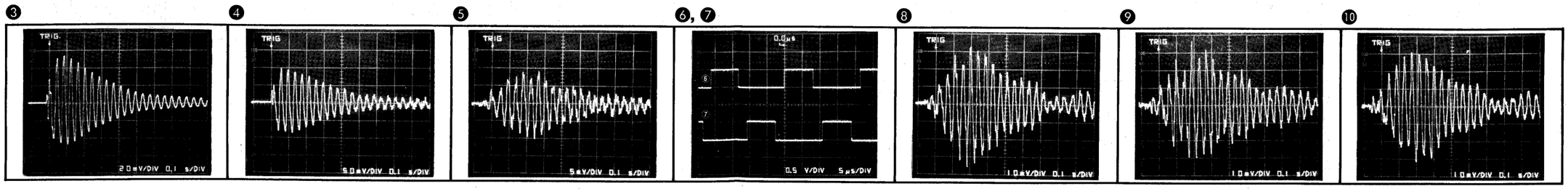
IC1:	MN1280R
IC2:	SVIG87064072
IC3, 4:	SVIGHM65256
IC5:	SVIGMB622161
IC6:	MN8305S
IC7:	SVIGPCM54
IC8:	SVIGM5278L05
IC9:	SVIGM74H4066
IC10:	SVIGLM1894N
IC11, 12, 14~16:	SVIGM5218L
IC13:	SVIGM5220L

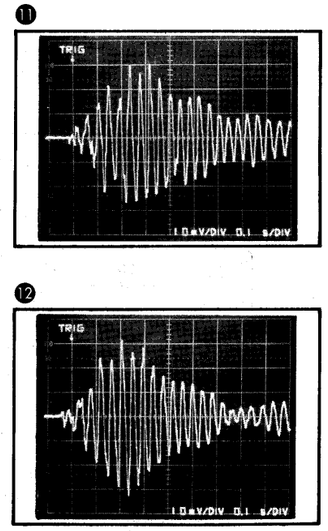
- DIODES

D1~4:	MA165TA5

Measuring Conditions

1. Set the initial mode before measurement.
2. After initial mode, set the measurement conditions as follows.
   - Right Tone .....Piano 1
   - Digital Reverb .....Hall 1
   - Balance (Right).....Max.
   - Keyboard.....C_{52}





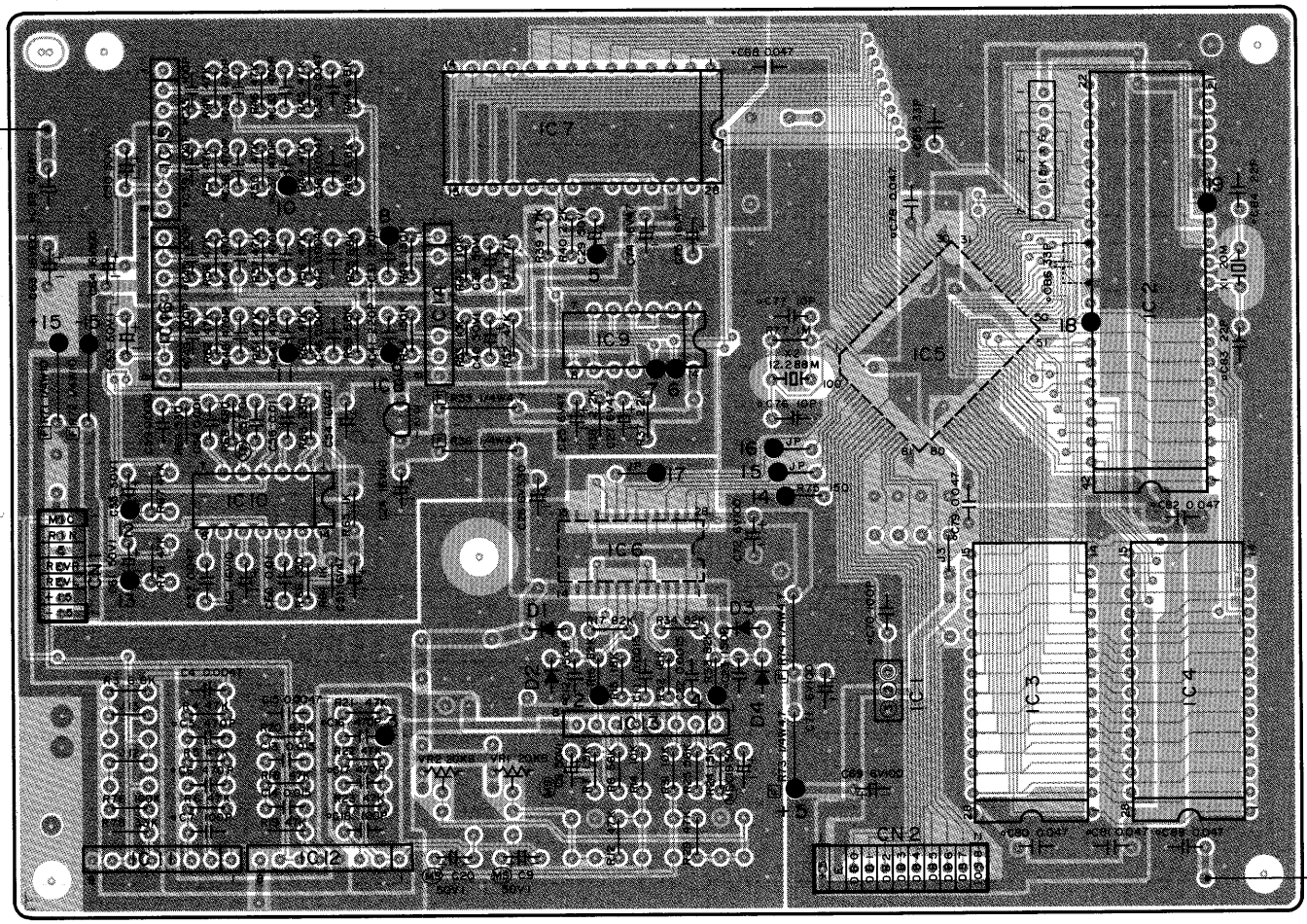
DIGITAL REVERB CIRCUIT BOARD

1 2 3 4 5

A B C D E F

Circuit view on top of P.C.B.

SXPG144141



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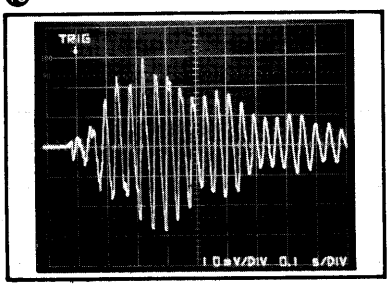

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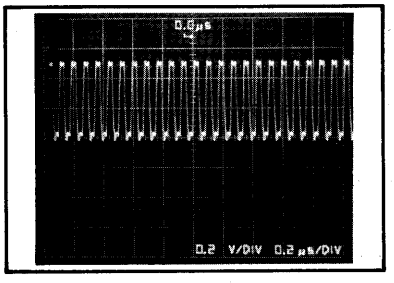

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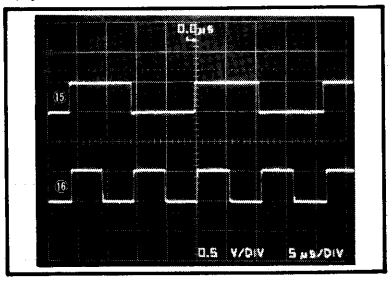

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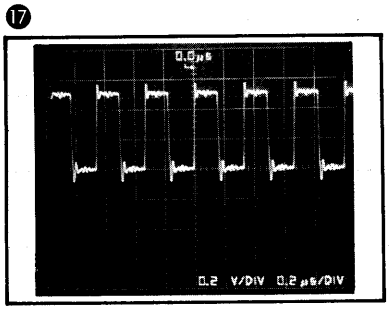

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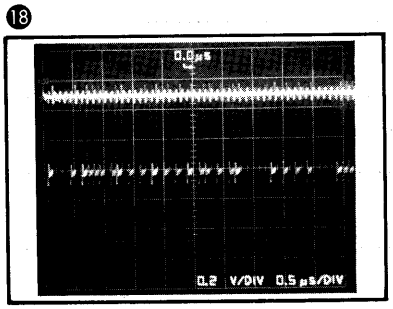

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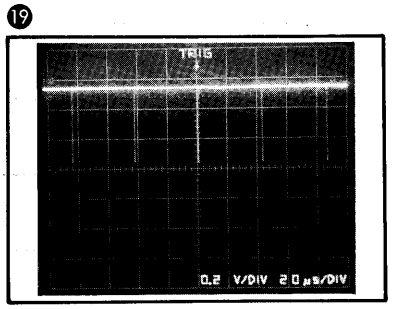


MEMO

REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

Notes:

1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
2. The "S" mark is service standard parts and may differ from production parts.
3. ○ mark are new parts.
4. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

■ PRINTED CIRCUIT BOARD

	NLA	Area	Part No.	Description	Per/Set
○	NLA		SXPG145221	MAIN	1
	NLA		SXPG141921	FDCN	1
	NLA		SXPG144011	CL&F	1
○	NLA		SXPG144811B	MC	1
○	NLA		SXPG144811C	VR	1
○	NLA		SXPG142121A	CPL	1
	NLA		SXPG142111B	CPR	1
	NLA		SXPG141311	MKB	1
○	NLA		SXPG139251	PA	1
○	NLA		SXPG145421	ACP	1
○	NLA		SXPG139371	PS	1
○	NLA		SXPG144811D	NW	1
○	NLA		SXPG144811A	MIC	1
○	NLA		SXPG144141	DRV	1

MAIN MAIN CIRCUIT

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
	IC1	SVIGM74LS07	Hex Buffers (O.C.)	1
	IC2	SVIGM74LS05	Hex Inverters (O.C.)	1
	IC4	SVIGTLP513	Photo Coupler	1
	IC5, 11	SVIG7810HCW	1 chip 8 bit Microcomputer	2
	IC6	SVIGM603A114	Gate Array	1
○	IC7	SVIG5PR1AX0	512K bit EP ROM	1
	IC8, 14	SVIGD446C25	16K bit SRAM	2
	IC9, 10	SVIGD446415L	64K bit SRAM	2
	IC12	SVIGTC40H373	Octal D-type Latches	1
	IC13	SVIG2R300BX1	256K bit EP ROM	1
	IC15	SVIGTC40H004	Hex Inverters	1
	IC17	SVIGTC40H000	2-input NAND Gate	1
	IC18, 23	MN6635	Digital Sound Processor	2
	IC19-IC1	SVIGU3C04203	4M bit MASK ROM	1
	IC19-IC2	SVIGU3C04204	4M bit MASK ROM	1
	IC20, 25	SVIGBA9221	12 bit D-A Converter	2
	IC21, 26	SVIGM5238L	Operational Amplifier	2
	IC22, 27	SVIGT74H4051	8-channel Multiplexer	2
	IC24	SVIGU3C04165	4M bit Mask ROM	1
	IC28, 45~50, 53~57, 60, 61	SVIGM5218L	Operational Amplifier	14
	IC29~44	SVIGM74H4066	Quad Bilateral Switches	16
	IC51	SVIGMSM4011	2-input NAND Gate	1
	IC52	MN3009	BBD (256 stages)	1
	IC58	SVIGLM1894N	Dynamic Noise Reduction	1
	TRANSISTORS			
S	Q1~3, 5	2SA1015-GR	2SA933STRS	4
S	Q4, 6	2SC2320LFG	2SC1310FG	2
	Q7~12	2SJ105GR	FET	6

Ref. No.	Part No.	Description	Per/Set
DIODES			
D9~21, 23~26, 29	MA165TA5		18
OSCILLATORS			
X1, 3	SVQG49S1500T	15MHz, Quartz Oscillator	2
X2	EF0FC4004A3	4MHz, Ceramic Oscillator	1
X4	SVQG49S1600T	16MHz, Quartz Oscillator	1
COMPONENT COMBINATIONS			
Z1, 2, 4, 5	EXBP78472JM	4.7KΩ×8	4
Z3, 6	EXBP74472JM	4.7KΩ×8	2
Z7, 8	EXKS14Z2073	1KΩ/2KΩ, Ladder Network	2
JACKS			
JK3	SJSG1390A	PEDAL IN	1
JK4~6	SJSG1370A	MIDI (IN, OUT, THRU)	3
JK7~10	SJJG400A	AUX IN, LINE OUT	4
SEMI-FIXED RESISTOR			
VR2	EVSG0E1B223A	22KΩ B, BBD bias	1
RESISTORS			
R1	ERDS2TJ472	4.7KΩ	1
R2	ERDS2TJ102	1KΩ	1
R5	ERDS2TJ221	220Ω	1
R6	ERDS2TJ473	47KΩ	1
R7	ERDS2TJ102	1KΩ	1
R8	ERDS2TJ331	330Ω	1
R9	ERDS2TJ102	1KΩ	1
R10	ERDS2TJ272	2.7KΩ	1
R11, 12	ER0S2TKF1001	1KΩ, ±1%	2
R13, 14	ERDS2TJ471	470Ω	2
R15	ERDS2TJ103	10KΩ	1
R16	ERDS2TJ102	1KΩ	1
R17, 18	ERDS2TJ103	10KΩ	2
R19	ERDS2TJ102	1KΩ	1
R20, 21	ERDS2TJ103	10KΩ	2
R22	ERDS2TJ102	1KΩ	1
R23, 24	ERDS2TJ103	10KΩ	2
R25	ERDS2TJ680	68Ω	1
R26	ERDS2TJ151	150Ω	1
R27	ERDS2TJ221	220Ω	1
R28	ERDS2TJ333	33KΩ	1
R29	ERDS2TJ221	220Ω	1
R30	ERDS2TJ331	330Ω	1
R31	ERDS2TJ680	68Ω	1
R32	ERDS2TJ151	150Ω	1
R33	ERDS2TJ221	220Ω	1
R34	ERDS2TJ333	33KΩ	1
R35~38	ERDS2TJ102	1KΩ	4
R40 ⚠	ERD2FCJ6R8	6.8Ω, 1/4W, Fuse Type	1
R41	ERDS2TJ183	18KΩ	1
R42	ERDS2TJ332	3.3KΩ	1

Ref. No.	Part No.	Description	Per/Set
R43	ERDS2TJ105	1MΩ	1
R44	ERDS2TJ221	220Ω	1
R45	ERDS2TJ103	10KΩ	1
R46	ERDS2TJ823	82KΩ	1
R47	ERDS2TJ223	22KΩ	1
R48	ERDS2TJ103	10KΩ	1
R49	ERDS2TJ473	47KΩ	1
R50	ERDS2TJ102	1KΩ	1
R51, 52 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	2
R53 ⚠	ERD2FCG100	10Ω, 1/4W, Fuse Type	1
R54	ERDS2TJ153	15KΩ	1
R55, 56	ERDS2TJ471	470Ω	2
R57, 58	ER0S2TKF4700	470Ω, ±1%	2
R59	ERDS2TJ153	15KΩ	1
R60, 61	ERDS2TJ471	470Ω	2
R62, 63	ER0S2TKF4700	470Ω, ±1%	2
R64, 65	ERDS2TJ472	4.7KΩ	2
R66	ERDS2TJ102	1KΩ	1
R67	ERDS2TJ151	150Ω	1
R68, 69	ERDS2TJ331	330Ω	2
R70	ERDS2TJ473	47KΩ	1
R71	ERDS2TJ151	150Ω	1
R72, 73	ERDS2TJ331	330Ω	2
R74	ERDS2TJ473	47KΩ	1
R75	ERDS2TJ151	150Ω	1
R76, 77	ERDS2TJ331	330Ω	2
R78	ERDS2TJ473	47KΩ	1
R79	ERDS2TJ151	150Ω	1
R80, 81	ERDS2TJ331	330Ω	2
R82	ERDS2TJ473	47KΩ	1
R83	ERDS2TJ151	150Ω	1
R84, 85	ERDS2TJ331	330Ω	2
R86	ERDS2TJ473	47KΩ	1
R87	ERDS2TJ151	150Ω	1
R88, 89	ERDS2TJ331	330Ω	2
R90	ERDS2TJ473	47KΩ	1
R91	ERDS2TJ151	150Ω	1
R92, 93	ERDS2TJ331	330Ω	2
R94	ERDS2TJ473	47KΩ	1
R95	ERDS2TJ151	150Ω	1
R96, 97	ERDS2TJ331	330Ω	2
R98	ERDS2TJ473	47KΩ	1
R99	ERDS2TJ151	150Ω	1
R100, 101	ERDS2TJ331	330Ω	2
R102	ERDS2TJ473	47KΩ	1
R103	ERDS2TJ151	150Ω	1
R104, 105	ERDS2TJ331	330Ω	2
R106	ERDS2TJ473	47KΩ	1
R107	ERDS2TJ151	150Ω	1
R108, 109	ERDS2TJ331	330Ω	2
R110	ERDS2TJ473	47KΩ	1
R111	ERDS2TJ151	150Ω	1
R112, 113	ERDS2TJ331	330Ω	2
R114	ERDS2TJ473	47KΩ	1
R115	ERDS2TJ151	150Ω	1
R116, 117	ERDS2TJ331	330Ω	2
R118	ERDS2TJ473	47KΩ	1
R119	ERDS2TJ151	150Ω	1
R120, 121	ERDS2TJ331	330Ω	2
R122	ERDS2TJ473	47KΩ	1
R123	ERDS2TJ151	150Ω	1
R124, 125	ERDS2TJ331	330Ω	2
R126	ERDS2TJ473	47KΩ	1
R127	ERDS2TJ151	150Ω	1
R128, 129	ERDS2TJ331	330Ω	2
R130	ERDS2TJ473	47KΩ	1
R131	ERDS2TJ683	68KΩ	1
R132	ERDS2TJ682	6.8KΩ	1

Ref. No.	Part No.	Description	Per/Set
R133~135	ERDS2TJ473	47KΩ	3
R136	ERDS2TJ683	68KΩ	1
R137	ERDS2TJ682	6.8KΩ	1
R138~140	ERDS2TJ473	47KΩ	3
R141	ERDS2TJ823	82KΩ	1
R142	ERDS2TJ104	100KΩ	1
R143	ERDS2TJ682	6.8KΩ	1
R144, 145	ERDS2TJ683	68KΩ	2
R146	ERDS2TJ563	56KΩ	1
R147	ERDS2TJ823	82KΩ	1
R148	ERDS2TJ104	100KΩ	1
R149	ERDS2TJ472	4.7KΩ	1
R150~153	ERDS2TJ333	33KΩ	4
R154	ERDS2TJ393	39KΩ	1
R155	ERDS2TJ183	18KΩ	1
R156	ERDS2TJ681	680Ω	1
R157	ERDS2TJ472	4.7KΩ	1
R158	ERDS2TJ333	33KΩ	1
R159	ERDS2TJ393	39KΩ	1
R160	ERDS2TJ183	18KΩ	1
R161	ERDS2TJ681	680Ω	1
R162	ERDS2TJ472	4.7KΩ	1
R163, 164	ERDS2TJ103	10KΩ	2
R165	ERDS2TJ473	47KΩ	1
R166	ERDS2TJ105	1MΩ	1
R167	ERDS2TJ223	22KΩ	1
R168	ERDS2TJ473	47KΩ	1
R169	ERDS2TJ102	1KΩ	1
R170	ERDS2TJ183	18KΩ	1
R171	ERDS2TJ124	120KΩ	1
R172, 173	ERDS2TJ332	3.3KΩ	2
R174	ERDS2TJ124	120KΩ	1
R175	ERDS2TJ153	15KΩ	1
R176	ERDS2TJ154	150KΩ	1
R177	ERDS2TJ103	10KΩ	1
R178	ERDS2TJ333	33KΩ	1
R179, 180	ERDS2TJ473	47KΩ	2
R181	ERDS2TJ104	100KΩ	1
R182	ERDS2TJ473	47KΩ	1
R183~185	ERDS2TJ104	100KΩ	3
R186	ERDS2TJ473	47KΩ	1
R187	ERDS2TJ104	100KΩ	1
R188	ERDS2TJ473	47KΩ	1
R189~191	ERDS2TJ104	100KΩ	3
R192	ERDS2TJ394	390KΩ	1
R193	ERDS2TJ184	180KΩ	1
R194	ERDS2TJ473	47KΩ	1
R195	ERDS2TJ823	82KΩ	1
R196~198	ERDS2TJ104	100KΩ	3
R199	ERDS2TJ394	390KΩ	1
R200	ERDS2TJ184	180KΩ	1
R201	ERDS2TJ473	47KΩ	1
R202	ERDS2TJ823	82KΩ	1
R203, 204	ERDS2TJ104	100KΩ	2
R205	ERDS2TJ334	330KΩ	1
R206	ERDS2TJ104	100KΩ	1
R207~210	ERDS2TJ105	1MΩ	4
R211	ERDS2TJ472	4.7KΩ	1
R214	ERDS2TJ104	100KΩ	1
R215	ERDS2TJ183	18KΩ	1
R216	ERDS2TJ683	68KΩ	1
R217	ERDS2TJ104	100KΩ	1
R218	ERDS2TJ183	18KΩ	1
R219	ERDS2TJ683	68KΩ	1
R221, 222	ERDS2TJ154	150KΩ	2
R223~225	ERDS2TJ473	47KΩ	3
R226	ERDS2TJ104	100KΩ	1
R228, 229	ERDS2TJ154	150KΩ	2

Ref. No.	Part No.	Description	Per/Set
R230	ERDS2TJ104	100KΩ	1
R231	ERDS2TJ223	22KΩ	1
R232	ERDS2TJ473	47KΩ	1
R233	ERDS2TJ104	100KΩ	1
R234	ERDS2TJ331	330Ω	1
R235	ERDS2TJ681	680Ω	1
R236, 237	ERDS2TJ331	330Ω	2
R238, 239	ERDS2TJ183	18KΩ	2
R240, 241	ERDS2TJ153	15KΩ	2
R242	ERDS2TJ563	56KΩ	1
R243	ERDS2TJ101	100Ω	1
R244	ERDS2TJ563	56KΩ	1
R245	ERDS2TJ101	100Ω	1
R246	ERDS2TJ822	8.2KΩ	1
R247, 248	ERDS2TJ681	680Ω	2
R249	ERDS2TJ822	8.2KΩ	1
R250	ERDS2TJ681	680Ω	1
R251, 252	ERDS2TJ102	1KΩ	2
R253, 254	ERDS2TJ333	33KΩ	2
R255	ERDS2TJ105	1MΩ	1
R256	ERDS2TJ152	1.5KΩ	1
R257	ERDS2TJ224	220KΩ	1
R260	ERDS2TJ223	22KΩ	1
R264	ERDS2TJ472	4.7KΩ	1
R265, 266	ERDS2TJ101	100Ω	2
CAPACITORS			
C2	ECCR1H471J	470pF	1
C3	ECCR1H221J	220pF	1
C4	ECKR1E473ZV	0.047μF	1
C7~10	ECKR1E473ZV	0.047μF	4
C14	ECEA0JU101	100μF, 6.3V	1
C15	ECKR1E473ZV	0.047μF	1
C19~22	ECKR1E473ZV	0.047μF	4
C27, 28	ECEA0JU101	100μF, 6.3V	2
C29	ECEA1HUR47	0.47μF, 50V	1
C30	ECKR1E473ZV	0.047μF	1
C31	ECRR1H104ZF	0.1μF	1
C32~34	ECKR1E473ZV	0.047μF	3
C35	AC2061G473Z5	5.5V 0.047F	1
C38	ECEA0JU101	100μF, 6.3V	1
C39, 40	ECRR1H104ZF	0.1μF	2
C41~43	ECKR1E473ZV	0.047μF	3
C45	ECEA0JU331	330μF, 6.3V	1
C46, 47	ECEA1CU101	100μF, 16V	2
C48	ECEA0JU101	100μF, 6.3V	1
C51	ECRR1H104ZF	0.1μF	1
C52, 53	ECKR1E473ZV	0.047μF	2
C54	ECCR1H221J	220pF	1
C55	ECKR1E473ZV	0.047μF	1
C56	ECEA0JU331	330μF, 6.3V	1
C57	ECKR1E473ZV	0.047μF	1
C59, 60	ECKR1E473ZV	0.047μF	2
C61	ECCR1H221J	220pF	1
C62	ECKR1E473ZV	0.047μF	1
C63	ECEA0JU331	330μF, 6.3V	1
C64, 65	ECEA0JU470	47μF, 6.3V	2
C67~70	ECKR1E473ZV	0.047μF	4
C71	ECEA0JU101	100μF, 6.3V	1
C72	ECQG1H472KZ	0.0047μF	1
C73	ECQG1H102KZ	0.001μF	1
C74	ECQG1H472KZ	0.0047μF	1
C75	ECQG1H102KZ	0.001μF	1
C76	ECQG1H472KZ	0.0047μF	1
C77	ECQG1H102KZ	0.001μF	1
C78	ECQG1H472KZ	0.0047μF	1
C79	ECQG1H102KZ	0.001μF	1

Ref. No.	Part No.	Description	Per/Set
C80	ECQG1H472KZ	0.0047μF	1
C81	ECQG1H102KZ	0.001μF	1
C82	ECQG1H472KZ	0.0047μF	1
C83	ECQG1H102KZ	0.001μF	1
C84	ECQG1H472KZ	0.0047μF	1
C85	ECQG1H102KZ	0.001μF	1
C86	ECQG1H472KZ	0.0047μF	1
C87	ECQG1H102KZ	0.001μF	1
C88	ECQG1H472KZ	0.0047μF	1
C89	ECQG1H102KZ	0.001μF	1
C90	ECQG1H472KZ	0.0047μF	1
C91	ECQG1H102KZ	0.001μF	1
C92	ECQG1H472KZ	0.0047μF	1
C93	ECQG1H102KZ	0.001μF	1
C94	ECQG1H472KZ	0.0047μF	1
C95	ECQG1H102KZ	0.001μF	1
C96	ECQG1H472KZ	0.0047μF	1
C97	ECQG1H102KZ	0.001μF	1
C98	ECQG1H472KZ	0.0047μF	1
C99	ECQG1H102KZ	0.001μF	1
C100	ECQG1H472KZ	0.0047μF	1
C101	ECQG1H102KZ	0.001μF	1
C102	ECQG1H472KZ	0.0047μF	1
C103	ECQG1H102KZ	0.001μF	1
C104	ECCR1H221J	220pF	1
C105	ECEA0JU470	47μF, 6.3V	1
C106	ECQG1H332KZ	0.0033μF	1
C107, 108	ECCR1H471J	470pF	2
C109	ECCR1H101J	100pF	1
C110	ECCR1H221J	220pF	1
C111	ECQG1H332KZ	0.0033μF	1
C112, 113	ECCR1H471J	470pF	2
C114	ECCR1H101J	100pF	1
C115	ECQG1H222KZ	0.0022μF	1
C116	ECCR1H221J	220pF	1
C117	ECQG1H472KZ	0.0047μF	1
C118, 119	ECCR1H471J	470pF	2
C120	ECCR1H101J	100pF	1
C121	ECQG1H222KZ	0.0022μF	1
C122	ECCR1H221J	220pF	1
C123	ECQG1H332KZ	0.0033μF	1
C124, 125	ECCR1H471J	470pF	2
C126	ECCR1H101J	100pF	1
C127, 128	ECCR1H331J	330pF	2
C129	ECCR1H681J	680pF	1
C130, 131	ECCR1H331J	330pF	2
C132	ECCR1H681J	680pF	1
C133	ECKR1E473ZV	0.047μF	1
C134	ECEA1HN010S	1μF, 50V	1
C135	ECEA1CU470	47μF, 16V	1
C136	ECEA1CU101	100μF, 16V	1
C137, 138	ECCR1H151J	150pF	2
C139	ECQG1H102KZ	0.001μF	1
C140	ECQV1H104JZ	0.1μF	1
C141, 142	ECQG1H102KZ	0.001μF	2
C143, 144	ECCR1H680J	68pF	2
C145	ECEA1HU010	1μF, 50V	1
C146	ECCR1H101J	100pF	1
C147	ECEA1HN010S	1μF, 50V	1
C148	ECQG1H222KZ	0.0022μF	1
C149	ECQG1H152KZ	0.0015μF	1
C150	ECEA1HN010S	1μF, 50V	1
C151	ECQG1H222KZ	0.0022μF	1
C152	ECCR1H470J	47pF	1
C153	ECCR1H101J	100pF	1
C154~156	ECKR1E473ZV	0.047μF	3
C157	ECEA1HU010	1μF, 50V	1
C158, 159	ECEA50M1R	1μF, 50V	2

Ref. No.	Part No.	Description	Per/Set
C160	ECQV1H104JZ	0.1μF	1
C161	ECEA1HN010S	1μF, 50V	1
C162	ECCR1H101J	100pF	1
C163	ECEA1HN010S	1μF, 50V	1
C164	ECCR1H101J	100pF	1
C165, 166	ECEA50M1R	1μF, 50V	2
C167	ECCR1H470J	47pF	1
C168	ECEA1HU010	1μF, 50V	1
C169	ECCR1H470J	47pF	1
C170	ECEA1HU010	1μF, 50V	1
C171	ECEA1CU470	47μF, 16V	1
C172	ECQG1H472KZ	0.0047μF	1
C173	ECQV1H104JZ	0.1μF	1
C174	ECQG1H102KZ	0.001μF	1
C175	ECQG1H332KZ	0.0033μF	1
C176	ECQV1H473JZ	0.047μF	1
C177	ECEA1CU100	10μF, 16V	1
C178	ECQG1H472KZ	0.0047μF	1
C179	ECEA1CU470	47μF, 16V	1
C180	ECEA1CU100	10μF, 16V	1
C181	ECCR1H101J	100pF	1
C182	ECEA1CU100	10μF, 16V	1
C183~185	ECCR1H101J	100pF	3
C187	ECEA0JU470	47μF, 6.3V	1
C188~191	ECKR1E473ZV	0.047μF	4
C195	ECQG1H332KZ	0.0033μF	1

CL&F CURRENT LIMIT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
TRANSISTORS			
Q1, 2	2SB941P		2
RESISTORS			
R1, 2 ⚠	ERX2ANJR22	0.22Ω, 2W, Flame-Proof	2
R3	ERDS2TJ103	10KΩ	1
R4	ERDS2TJ822	8.2KΩ	1
R5	ERDS2TJ151	150Ω	1
CAPACITOR			
C1	ECEA1CU331	330μF, 16V	1

MC MEMORY CARD CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGTC40H374	3-State D-type Flip-Flop	1
SOCKET			
CN3	SJPG8DU300A	Memory Card Socket	1
CAPACITORS			
C1	ECKR1E473ZV	0.047μF	1
C2	ECEA0JU101	100μF, 6.3V	1

VR MAIN VOLUME CIRCUIT

Ref. No.	Part No.	Description	Per/Set
VARIABLE RESISTOR			
VR1	EWD06910B53G	5KΩ B, Main Volume	1

CPL CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2~4	SVIGM74LS07	Hex Buffers (O.C.)	3
TRANSISTORS			
Q1~4	2SA830SB		4
DIODES			
D1~38	MA165TA5		38
D39~47, 52~81, 83, 84	LN282R	LED, (Red)	41
D48~50, 82	LN382G	LED, (Green)	4
DISPLAYS			
LD1	LN514RA	7 Segment	1
LD2	LN524RA	Dual 7 Segment	1
COMPONENT COMBINATION			
Z1	EXBP78103JM	10KΩ×8	1
VARIABLE RESISTOR			
VR2	EVD06510B24G	20KΩ B, Tempo Volume	1
RESISTORS			
R2	ERDS2TJ184	180KΩ	1
R3	ERDS2TJ221	220Ω	1
R4	ERDS2TJ103	10KΩ	1
R5	ERDS2TJ152	1.5KΩ	1
R6~9	ERDS2TJ103	10KΩ	4
R10~13	ERDS2TJ152	1.5KΩ	4
R14~31	ERDS2TJ470	47Ω	18
CAPACITORS			
C2	ECEA0JK101	100μF, 6.3V	1
C3	ECRR1H104ZF	0.1μF	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HK010	1μF, 50V	1
C7, 8	ECRR1H104ZF	0.1μF	2

CPR CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM603A121	Gate Array	1
IC2~4	SVIGM74LS07	Hex Buffers (O.C.)	3
TRANSISTORS			
Q1~4	2SA830SB		4
DIODES			
D1~57	MA165TA5		57
D58~63	LN382G	LED, (Green)	6
D64~94, 96~116	LN282R	LED, (Red)	52
COMPONENT COMBINATION			
Z1	EXBP78103JM	10KΩ×8	1
RESISTORS			
R2	ERDS2TJ184	180KΩ	1
R3	ERDS2TJ221	220Ω	1
R4	ERDS2TJ103	10KΩ	1
R5	ERDS2TJ152	1.5KΩ	1
R6~9	ERDS2TJ103	10KΩ	4
R10~13	ERDS2TJ152	1.5KΩ	4
R14~29	ERDS2TJ470	47Ω	16
CAPACITORS			
C2	ECEA0JK101	100μF, 6.3V	1
C3	ECRR1H104ZF	0.1μF	1
C4	ECCR1H101J	100pF	1
C5	ECEA1HK010	1μF, 50V	1
C6, 7	ECRR1H104ZF	0.1μF	2

MKB MANUAL KEYBOARD CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN50020PGV	Gate Array	1
IC2	not supplied		1
DIODES			
S D1~176	MA162A	MA150IR	176
OSCILLATOR			
X1	EF0FC4004A3	4MHz, Ceramic Oscillator	1
COMPONENT COMBINATION			
Z1	EXBP88332JM	3.3KΩ×8	1

Ref. No.	Part No.	Description	Per/Set
SWITCHES			
S1~14, 45~58	SSPG7003A	Rubber Switch (7 continuous)	4
S15~49, 59~88	SSPG6003A	Rubber Switch (6 continuous)	10
RESISTORS			
R1	ERDS2TJ101	100Ω	1
R2	ERDS2TJ103	10KΩ	1
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ472	4.7KΩ	1
CAPACITORS			
C1	ECCR1H681J	680pF	1
C2	ECKR1E473ZV	0.047μF	1
C3	ECCR1H681J	680pF	1
C4	ECEA1CU470	47μF, 16V	1

PA POWER AMP CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGS4221M2M	Power Amplifier	1
DIODES			
○ D1, 2, 4, 5, ⚠ 8, 9, 11, 12	SVDGS3V20-15	Rectifier	8
RESISTORS			
R1	ERDS2TJ183	18KΩ	1
R2	ERDS2TJ153	15KΩ	1
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ393	39KΩ	1
R5	ERDS2TJ472	4.7KΩ	1
R6, 7	ERDS2TJ222	2.2KΩ	2
R8	ERDS2TJ224	220KΩ	1
R9	ERDS2TJ103	10KΩ	1
R11	ERDS2TJ681	680Ω	1
R12, 13	ERDS2TJ102	1KΩ	2
R14 ⚠	ERD50FJ4R7	4.7Ω, 1/2W, Flame-Proof	1
R15 ⚠	ERD2FCG101	100Ω, 1/4W, Fuse Type	1
R17, 18	ERDS2TJ222	2.2KΩ	2
R19	ERDS2TJ472	4.7KΩ	1
R20	ERDS2TJ393	39KΩ	1
R21	ERDS2TJ222	2.2KΩ	1
R23	ERDS2TJ153	15KΩ	1
R24	ERDS2TJ183	18KΩ	1
R41 ⚠	ERD50FJ4R7	4.7Ω, 1/2W, Flame-Proof	1

	Ref. No.		Part No.	Description	Per/Set
			CAPACITORS		
	C1		ECEA1HN010S	1μF, 50V	1
	C2		ECCR1H221J	220pF	1
	C3		ECEA1EU100	10μF, 25V	1
	C4		ECEA1HU470	47μF, 50V	1
○	C5		ECEA1JU4R7	4.7μF, 63V	1
	C6		ECQV1H104JZ	0.1μF	1
○	C7		ECEA1JU470	47μF, 63V	1
	C9		ECEA1HU470	47μF, 50V	1
	C10		ECEA1EU100	10μF, 25V	1
	C11		ECCR1H221J	220pF	1
○	C13		ECES1JU682U	6800μF, 63V	1
	C21		ECEA1HN010S	1μF, 50V	1
	C23, 24		ECQV1H104JZ	0.1μF	2
○	C29		ECES1JU682U	6800μF, 63V	1
	C30	⚠	ECQE2A104MW	0.1μF, 250V	1

ACP AC POWER SUPPLY CIRCUIT

	Ref. No.		Part No.	Description	Per/Set
			LINE FILTER		
	L2	⚠	SLTGLF4	Line Filter	1
			FUSE		
	F1	⚠	XBA1C63NU100	6.3A, 125V	1
			CAPACITORS		
	C1	⚠	ECKCVA1472MF	4700pF, Line-Capacitor	1
	C2	⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1

PS POWER SUPPLY CIRCUIT

	Ref. No.		Part No.	Description	Per/Set
			INTEGRATED CIRCUIT		
	IC1		SVIGM5291P	Switching Regulator	1
			TRANSISTORS		
S	Q1, 2		2SC2320LFG	2SC1310FG (SUB. Part)	2
	Q3		2SB953A	Transistor	1
	Q4		2SD1277A	Transistor	1
	Q5		2SB951A	Transistor	1
	Q6, 7		2SJ105GR	FET	2
			DIODES		
	D1~4	⚠	SVDGERA1502Y	Rectifier	4
	D5, 6	⚠	SVDS2V20	Rectifier	2
	D7		MA165TA5	Diode	1
	D8		SVDGERC9102	Diode	1
	D9		MA2062LF	Zener, 6.2V	1
	D10, 11		MA4160	Zener, 16.0V	2

	Ref. No.		Part No.	Description	Per/Set
			COIL		
	L1		SLCG3A121T	Coil	1
			RESISTORS		
	R1~3		ERDS2TJ103	10KΩ	3
	R4		ERDS2TJ471	470Ω	1
	R5, 6		ERDS2TJ473	47KΩ	2
	R7		ERDS2TJ104	100KΩ	1
	R8		ERDS2TJ472	4.7KΩ	1
	R9, 10	⚠	ERQ14AJ2R0P	2Ω, 1/4W, Fuse Type	2
○	R11	⚠	ERX1ANJPR22S	0.22Ω, 1W, Flame-Proof	1
	R14		ERDS2TJ101	100Ω	1
	R15	⚠	ERG1ANJP391S	390Ω, 1W, Flame-Proof	1
	R16		ERDS2TJ332	3.3KΩ	1
	R17		ERDS2TJ102	1KΩ	1
	R18, 19	⚠	ERQ12HKR47	0.47Ω, 1/2W, Fuse Type	2
			CAPACITORS		
	C1		ECEA1EU4R7	4.7μF, 25V	1
	C2		ECQV1H104JZ	0.1μF	1
	C3		ECEA1VU100	10μF, 35V	1
	C4		ECCR1H471J	470pF	1
	C5		ECEA0JU222	2200μF, 6.3V	1
	C6		ECKR1E473ZV	0.047μF	1
	C7		ECEA1VU100	10μF, 35V	1
	C8		ECEA1HN010S	1μF, 50V	1
	C9		ECEA1VU332	3300μF, 35V	1
	C11		ECEA1VU222	2200μF, 35V	1
	C12		ECEA1VU100	10μF, 35V	1
	C13		ECEA1HN010S	1μF, 50V	1
	C14		ECEA0JU222	2200μF, 6.3V	1

NW NETWORK CIRCUIT

	Ref. No.		Part No.	Description	Per/Set
			TRANSISTORS		
S	Q1, 2		2SC2320LFG	2SC1310FG (SUB. Part)	2
			DIODES		
	D1-3		MA165TA5		3
			RELAYS		
	RL1, 2		SSYGMR30112	Relay	2
			RESISTORS		
	R1		ERDS2TJ473	47KΩ	1
	R2		ERDS2TJ222	2.2KΩ	1
	R3, 4		ERDS2TJ154	150KΩ	2
	R5		ERDS2TJ103	10KΩ	1
	R6	⚠	ERD25FJ470	47Ω, 1/4W, Flame-Proof	1
			CAPACITORS		
	C1		ECEA1CU470	47μF, 16V	1
○	C2, 3		ECEA50Y3R9K	3.9μF, 50V	2
	C4, 5		ECEA50Y6R8	6.8μF, 50V	2

MIC MICROPHONE CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM5218L	Operational Amplifier	1
COIL			
L1	SLQG15W34DPQ	Coil	1
JACKS			
JK1	SJJG510A	Mic Jack	1
JK2	SJJG100A	Headphone Jack	1
VARIABLE RESISTORS			
VR1, 2	EWHD5A576B54	50KΩ, Echo & Mic Volume	2
VR3	EVA06215B55G	500KΩ B, Tune	1
RESISTORS			
R1	ERDS2TJ224	220KΩ	1
R2	ERDS2TJ103	10KΩ	1
R3	ERDS2TJ224	220KΩ	1
R4	ERDS2TJ103	10KΩ	1
R5	ERDS2TJ154	150KΩ	1
R6	ERDS2TJ102	1KΩ	1
R7, 8 ⚠	ERD50FJ681	680Ω, 1/2W, Flame-Proof	2
CAPACITORS			
C1, 2	ECKR1E473ZV	0.047μF	2
C3	ECEA1HN010S	1μF, 50V	1
C4, 5	ECCR1H101J	100pF	2
C6	ECEA1HN010S	1μF, 50V	1
C7	ECQG1H102KZ	0.001μF	1
C9, 10	ECKR1E473ZV	0.047μF	2
C11	ECQV1H104JZ	0.1μF	1

DRV DIGITAL REVERB CIRCUIT

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN1280R	Reset IC	1
○ IC2	SVIG87064072	Digital Signal Processor	1
IC3, 4	SVIGHM65256	256K bit RAM	2
IC5	SVIGMB622161	Gate Array	1
IC6	MN8305S	A-D Converter	1
IC7	SVIGPCM54	D-A Converter	1
IC8	SVIGM5278L05	+5V Voltage Regulator	1
IC9	SVIGM74H4066	Quad Bilateral Switches	1
IC10	SVIGLM1894N	Dynamic Noise Reduction	1
IC11, 12, 14~16	SVIGM5218L	Operational Amplifier	5
IC13	SVIGM5220L	Operational Amplifier	1

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~4	MA165TA5		4
OSCILLATORS			
X1	SVQG49S2000T	20MHz, Quartz Oscillator	1
X2	SVQG49S1228T	12.288MHz, Quartz Oscillator	1
COMPONENT COMBINATION			
Z1	EXBPI6152JM	1.5KΩ×6	1
SEMI-FIXED RESISTORS			
VR1, 2	EVND4AA00B24	20KΩ B,	2
RESISTORS			
R3	ERDS2TJ682	6.8KΩ	1
R4~6	ERDS2TJ473	47KΩ	3
R7	ERDS2TJ152	1.5KΩ	1
R8	ERDS2TJ563	56KΩ	1
R12	ERDS2TJ473	47KΩ	1
R14	ERDS2TJ103	10KΩ	1
R15	ERDS2TJ183	18KΩ	1
R16, 17	ERDS2TJ823	82KΩ	2
R18, 19	ERDS2TJ473	47KΩ	2
R20	ERDS2TJ682	6.8KΩ	1
R21~23	ERDS2TJ473	47KΩ	3
R24	ERDS2TJ152	1.5KΩ	1
R25	ERDS2TJ563	56KΩ	1
R29	ERDS2TJ473	47KΩ	1
R31	ERDS2TJ103	10KΩ	1
R32	ERDS2TJ183	18KΩ	1
R33, 34	ERDS2TJ823	82KΩ	2
R35, 36 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	2
R37, 38	ERDS2TJ222	2.2KΩ	2
R39	ERDS2TJ472	4.7KΩ	1
R40	ERDS2TJ222	2.2KΩ	1
R41	ERDS2TJ473	47KΩ	1
R42	ERDS2TJ103	10KΩ	1
R43	ERDS2TJ154	150KΩ	1
R44	ERDS2TJ682	6.8KΩ	1
R45~47	ERDS2TJ473	47KΩ	3
R48	ERDS2TJ682	6.8KΩ	1
R49~52	ERDS2TJ473	47KΩ	4
R53	ERDS2TJ103	10KΩ	1
R54	ERDS2TJ154	150KΩ	1
R55	ERDS2TJ682	6.8KΩ	1
R56~58	ERDS2TJ473	47KΩ	3
R59	ERDS2TJ682	6.8KΩ	1
R60~62	ERDS2TJ473	47KΩ	3
R63	ERDS2TJ331	330Ω	1
R64, 65	ERDS2TJ102	1KΩ	2
R66	ERDS2TJ331	330Ω	1
R67	ERDS2TJ473	47KΩ	1
R68	ERDS2TJ681	680Ω	1
R69	ERDS2TJ331	330Ω	1
R70	ERDS2TJ473	47KΩ	1
R71, 72 ⚠	ERD2FCG100	10Ω, 1/4W, Fuse Type	2
R73, 74 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	2
R75	ERDS2TJ151	150Ω	1
R76	ERDS2TJ104	100KΩ	1
R77	ERDS2TJ105	1MΩ	1
R78	ERDS2TJ333	33KΩ	1

Ref. No.	Part No.	Description	Per/Set
	CAPACITORS		
C4	ECQG1H472KZ	0.0047μF	1
C5, 6	ECCR1H471J	470pF	2
C7	ECCR1H101J	100pF	1
C8, 9	ECEA50M1R	1μF, 50V	2
C11	ECQG1H152KZ	0.0015μF	1
C12	ECCR1H151J	150pF	1
C13, 14	ECQM1H153KV	0.015μF	2
C15	ECQG1H472KZ	0.0047μF	1
C16, 17	ECCR1H471J	470pF	2
C18	ECCR1H101J	100pF	1
C19, 20	ECEA50M1R	1μF, 50V	2
C22	ECQG1H152KZ	0.0015μF	1
C23	ECCR1H151J	150pF	1
C24	ECEA1CU100	10μF, 16V	1
C25	ECEA0JU470	47μF, 6.3V	1
C26	ECEA0JU331	330μF, 6.3V	1
C27	ECEA0JU470	47μF, 6.3V	1
C29, 30	ECEA1HU010	1μF, 50V	2
C31	ECCR1H221J	220pF	1
C32	ECQG1H472KZ	0.0047μF	1
C33, 34	ECCR1H471J	470pF	2
C35	ECCR1H101J	100pF	1
C36	ECQG1H472KZ	0.0047μF	1
C37, 38	ECCR1H471J	470pF	2
C39	ECCR1H101J	100pF	1
C40	ECEA1HU010	1μF, 50V	1
C41	ECCR1H221J	220pF	1
C42	ECQG1H472KZ	0.0047μF	1
C43, 44	ECCR1H471J	470pF	2
C45	ECCR1H101J	100pF	1
C46	ECQG1H472KZ	0.0047μF	1
C47, 48	ECCR1H471J	470pF	2
C49	ECCR1H101J	100pF	1
C50	ECEA1HU010	1μF, 50V	1
C51	ECEA1CU470	47μF, 16V	1
C52	ECQM1H473KV	0.047μF	1
C53	ECEA1HU010	1μF, 50V	1
C54	ECEA1CU470	47μF, 16V	1
C55	ECEA1HU010	1μF, 50V	1
C56	ECQM1H103KV	0.01μF	1
C57	ECQV1H104JZ	0.1μF	1
C58	ECQG1H102KZ	0.001μF	1
C59	ECQG1H332KZ	0.0033μF	1
C60	ECQM1H103KV	0.01μF	1
C61	ECEA1HU010	1μF, 50V	1
C62	ECEA1CU100	10μF, 16V	1
C63, 64	ECEA1CU101	100μF, 16V	2
C68	ECKR1E473ZV	0.047μF	1
C69	ECEA0JU101	100μF, 6.3V	1
C70	ECCR1H101J	100pF	1
C71, 72	ECEA0JU101	100μF, 6.3V	2
C74, 75	ECEA1CU470	47μF, 16V	2
C76, 77	ECCR1H100J	10pF	2
C78~82	ECKR1E473ZV	0.047μF	5
C83, 84	ECCR1H220J	22pF	2
C85, 86	ECCR1H330J	33pF	2
C88, 89	ECKR1E473ZV	0.047μF	2

■ WIRING PARTS

Ref. No.	Part No.	Description	Per/Set
○ W1, 13	SWEG790A	Connector, with Wire	2
○ W2	SWKG03120ZA	Connector, with Wire	1
○ W3	SWKG03104SSB	Connector, with Wire	1
○ W4	SWKG04154SSB	Connector, with Wire	1
○ W5	SWKG04161ZA	Connector, with Wire	1
○ W6	SWKG03123ZB	Connector, with Wire	1
○ W7	SWKG06133ZA	Connector, with Wire	1
○ W8	SWKG117SSB	Connector, with Wire	1
○ W9	SWKG08125ZA	Connector, with Wire	1
○ W10	SWKG04150SSA	Connector, with Wire	1
○ W11	SWKG06131ZA	Connector, with Wire	1
○ W12	SWKG06132SSA	Connector, with Wire	1
○ W14	SWKG08112ZA	Connector, with Wire	1
○ W15	SWKG0713SSA	Connector, with Wire	1
○ W16	SWKG03121ZA	Connector, with Wire	1
○ W17	SWKG0542SSA	Connector, with Wire	1
○ W18	SWKG08121SSB	Connector, with Wire	1
○ W19	SWKG04160SSA	Connector, with Wire	1
○ W20	SWKG0543SSB	Connector, with Wire	1
○ W21	SWKG166SSA	Connector, with Wire	1
W22	SWKG1419SSA	Connector, with Wire	1
○ W23	SWKG1520SSA	Connector, with Wire	1
○ W24	SWKG1086SSA	Connector, with Wire	1
○ W25	SWKG08124SSA	Connector, with Wire	1
○ W26	SWKG1349SSA	Connector, with Wire	1
○ W27	SWKG04151SSA	Connector, with Wire	1

SY-P4 MEMORY CARD

Ref. No.	Part No.	Description	Per/Set
	BR2016	3V, Lithium Battery	1

REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts

Notes:

1. Main cabinet parts supply
   ① The main cabinet parts (such as Top Cover, Cabinet Body, Legs, Pedal Box Ass'y, End Cover Panels) are not listed on parts list and they will not supply as replacement parts.
   ② If these parts are damaged and not reparable, the parts order only can be made priod of the production time at factory.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. ○ mark are new parts.

■ CABINET & CHASSIS PARTS

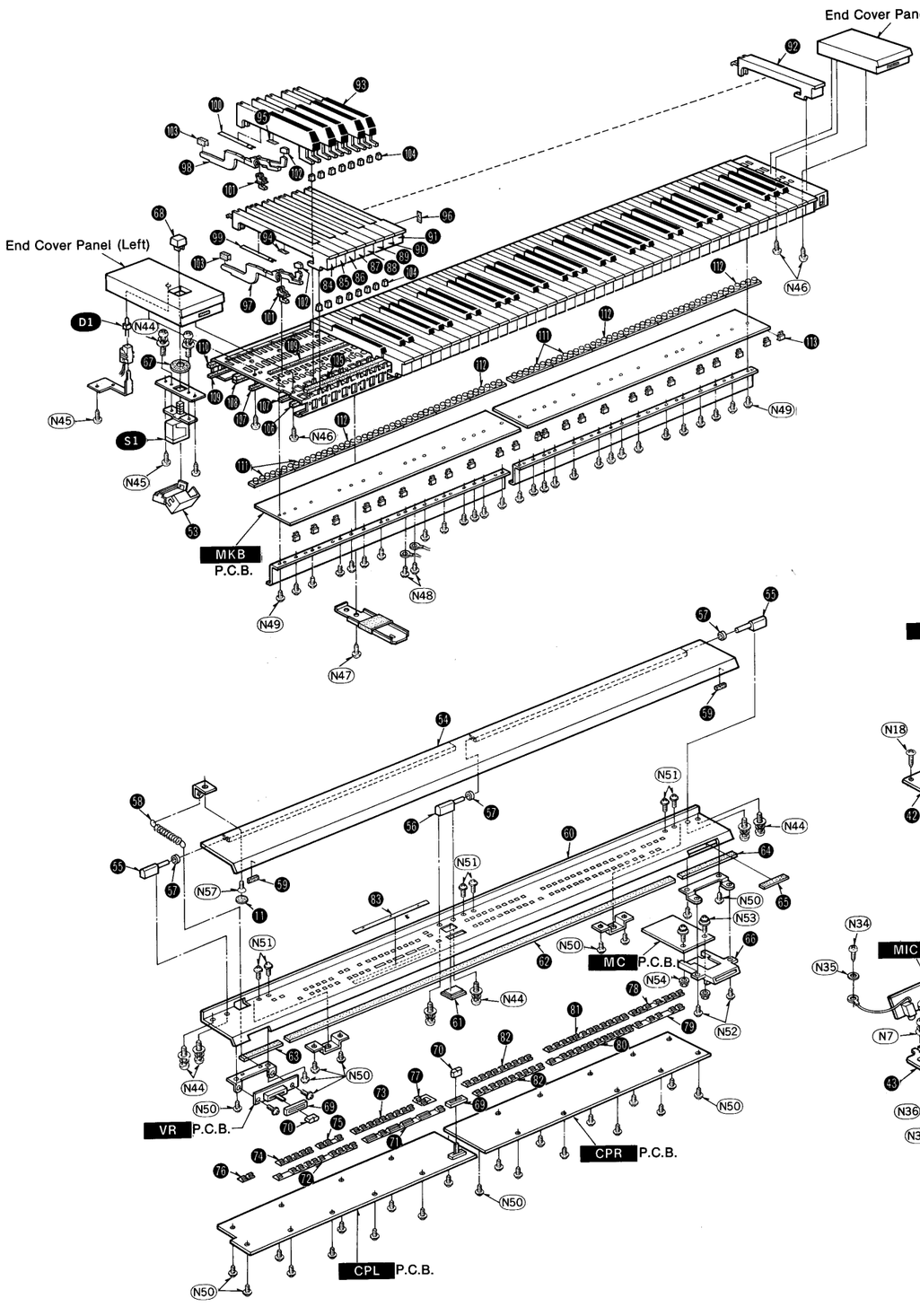
	Ref. No.	Part No.	Description	Per/Set
		SWITCHS		
	S1 ⚠	ESB8213V	Power Switch	1
	S2, 3	SSHG1034A	Pedal Switch	2
		SPEAKERS		
○	SP1, 2	EAS20PL255D	20cm, 8Ω	2
	SP3, 4	EAS8HH62A	Horn Tweeter, 16Ω	2
○	SP5~8	EAS15SH01A	6cm×13cm, 8Ω	4
		VARIABLE RESISTOR		
	VR1	EVA06820A24G	20KΩA, Sustain Pedal	1
		TRANSFORMER		
○	T1 ⚠	SLTG5P44	Power Transformer	1
		POWER INDICATOR		
○	D1	LN221RP	Power Indicator (LED)	1
		AC POWER CORD		
	PC1 ⚠	SJAG45	AC Power Cord	1
○	PC2 ⚠	SJAG67	Relay Power Cord	1
		CABINET		
○	1	SKGG1B220A	Music Rack (Clear Panel)	1
○	2	SGXG2362A	Ornament	1
○	3	SBLG52A	Stay	2
○	4	SHRGA5780A	Spacer	4
○	5	SHSG1840A	Felt	2
○	6	SKGG1B210A	Music Rack Stand	1
○	7	SHSG3760B	Felt	1
○	8	SHRGA7331A	Sponge	6
○	9	SHRGA7340A	Rubber Spacer	4
○	10	SKZG1280A	Sliding Cover Ass'y	1
○	10-1	SHGG1052A	Rubber Spacer	2
○	10-2	FFPMF0328	Gear	2
○	10-3	SNEG2470A	Spindle	1
○	11	SHSG9330B	Felt	3
○	12	SQLG20A	Caster	3
○	13	SWPG51A	Pedal Cable	1
○	14	SJEG110A	MIDI Cable	2
○	15	SGXG2462A	Cable Cover	1
	16	SHRG9620A	Cord Clamper	10
	17	SHRG1110A	Cord Clamper	1
	18	SHRG1120A	Cord Clamper	1
	19	SJSG450A	AC Inlet	2

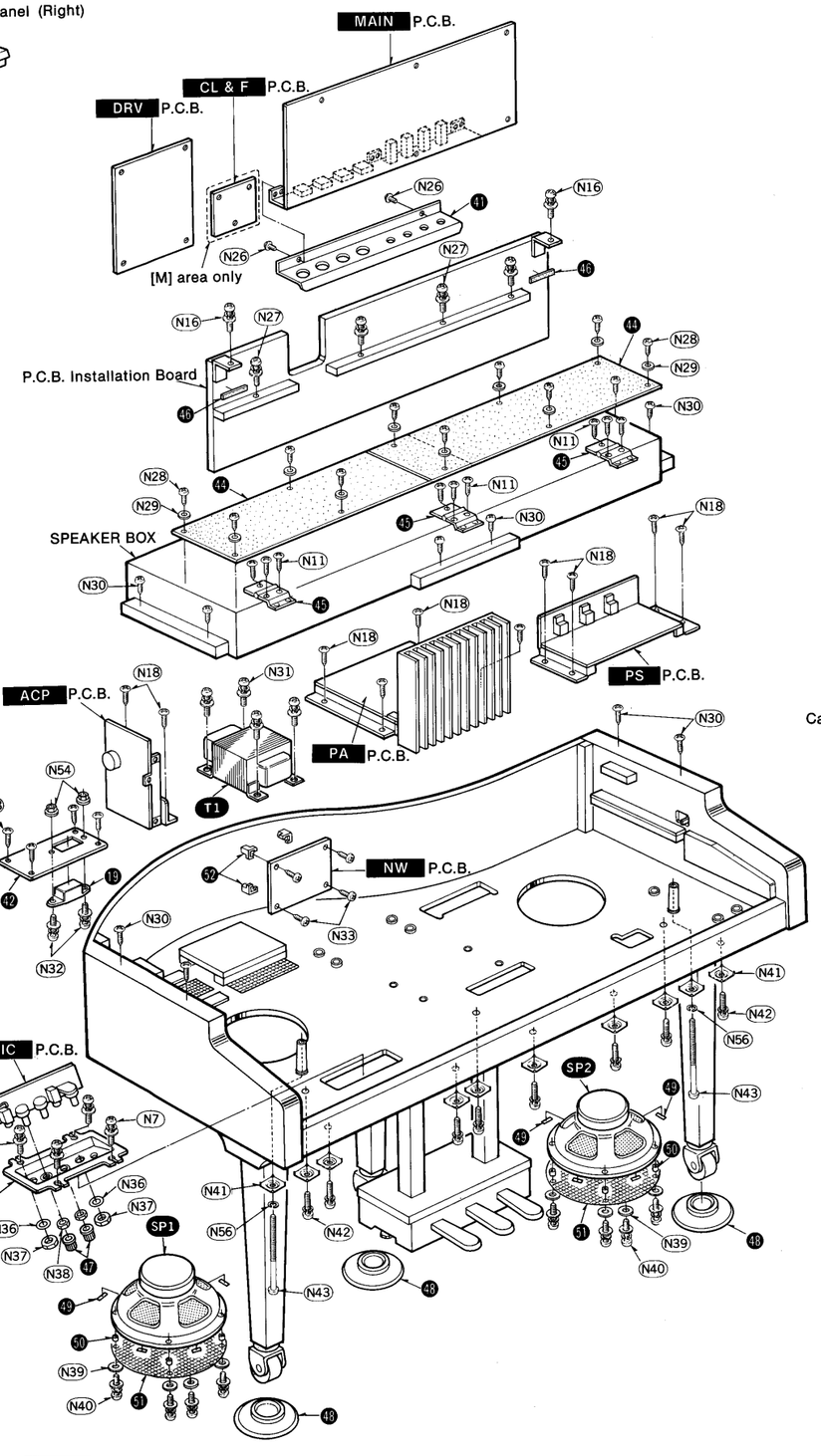
	Ref. No.	Part No.	Description	Per/Set
	20	SGKG3250A	AC IN Label	2
○	21	STBG3110A	Pedal Arm	3
○	22	STBG9400A	Pedal Cover	3
○	23	SHSG4560A	Felt	3
	24	SHSG2750A	Felt	3
	25	SHSG2770A	Felt	3
	26	SHSG3560A	Felt	1
	27	SHSG3520A	Felt	1
	28	SHSG2790A	Felt	3
	29	SUSG440A	Spring	3
	30	STBG9330A	Housing	1
	31	STBG9340A	Gear	1
	32	SHSG3510A	Felt	1
	33	SHSG5980A	Felt	1
	34	STBG9350A	Lever	1
	35	SUVG2050A	Connector Case	1
	36	SUVG2060A	Connector Case	1
	37	SUVG2070A	Connector Cover	1
	38	SHSG5970A	Felt	3
	39	SHRG9950A	Guide Rail (Right)	1
	40	SHRG9940A	Guide Rail (Left)	1
○	41	SMKG3460A	Jack Panel	1
○	42	SMKG2563A	Bracket (AC Inlet)	1
○	43	SMKG1563A	Jack Panel	1
○	44	SHSG6090A	Felt	2
○	45	SBHG52A	Hinge	3
○	46	SHSG3780A	Felt	2
	47	SBNG4010A	Knob	2
○	48	SBEG220A	Insulator	3
	49	SHSG3200A	Felt	8
○	50	SHRG4150A	Spacer	8
○	51	SGMG360A	Speaker Net	2
	52	SHRG4020A	P.C.B. Holder	4
	53	SHRG8390A	Power Switch Cover	1
○	54	SGXG9270A	Panel Cover	1
○	55	SNEG2480B	Fulcrum (Panel Cover)	2
○	56	SNEG2510B	Fulcrum (Panel Cover)	1
○	57	SNEG2550A	Spacer	3
○	58	SUSG591A	Spring	1
○	59	SHSG3910A	Felt	2
○	60	SYWG1980A	Control Panel	1
	61	SGUG50A	Display Panel	1
○	62	SHSG3430A	Felt (Red)	1
○	63	SHSG3751A	Felt	1
○	64	SHSG3800A	Felt	1
○	65	SHSG3840A	Felt	1
	66	SKEG1250A	Receptacle for Memory Card	1
	67	SHSG5480A	Felt	1
○	68	SBCG20I64	Power Switch Button	1
	69	SGEG260A	Ornament	2
	70	SBNG7050A	Knob	2
	71	SBCG770A	Button	1
	72	SBCG820A	Button	1

	Ref. No.	Part No.	Description	Per/Set
	73	SBCG880A	Button	1
	74	SBCG890A	Button	1
	75	SBCG910A	Button	1
	76	SBCG920A	Button	1
	77	SBCG930A	Button	1
	78	SBCG780A	Button	1
	79	SBCG800A	Button	1
	80	SBCG810A	Button	1
	81	SBCG830A	Button	1
	82	SBCG860A	Button	2
○	83	SQTG8094B	MIDI Seal	1
			MANUAL KEYBOARD	
	84	STBGA1050A	White Key (AA Key)	1
	85	STBGA1060A	White Key (B Key)	8
	86	STBGA1070A	White Key (C Key)	7
	87	STBGA1080A	White Key (D Key)	7
	88	STBGA1090A	White Key (E Key)	7
	89	STBGA1100A	White Key (F Key)	7
	90	STBGA1110A	White Key (G Key)	7
	91	STBGA1120A	White Key (A Key)	7
	92	STBGA1130A	White Key (CC Key)	1
	93	STBG2920A	Black Key	36
	94	SHSG3620A	Felt (White Key)	52
	95	SHSG3630A	Felt (Black Key)	36
	96	SHSG5910A	Felt (White Key)	52
	97	STBG9261A	Hammer (White Key)	52
	98	STBG9271A	Hammer (Black Key)	36
	99	SUSG520A	Spring (White Key)	52
	100	SUSG531A	Spring (Black Key)	36
	101	STBG9280A	Fulcrum (Hammer)	88
	102	SHGG9120A	Rubber Cap (Hammer)	88
	103	SHSG5760A	Felt (Hammer)	88
	104	SHRG9900A	Key Guide Rubber	88
	105	SHSG3451A	Felt	2
	106	SHSG3552A	Felt	2
	107	SHSG2670A	Felt	2
	108	SHSG3530A	Felt	2
	109	SHSG3461A	Felt	2
	110	SHSG9312A	Felt	2
	111	SSPG7003A	Rubber Switch (7 Continuous)	4
	112	SSPG6003A	Rubber Switch (6 Continuous)	10
	113	SHRG9751A	P.C.B. Spacer	24
			SCREWS & WASHERS	
○	N1	XSC3+8FZ	Screw	4
	N2	XTB3+8JFZ	Screw	2
○	N3	XSB4+10FZ	Screw	2
○	N4	XNG3AFZ	Nut	4
	N5	SNEG260B	Nut	2
	N6	XTB4+10A	Screw	4
	N7	XYN3+F16S	Screw with Washer	10
	N8	XTT4+25A	Screw	4
	N9	XTS35+16AFZ	Screw	3
	N10	XTT35+10A	Screw	6
	N11	XTT35+12A	Screw	25
○	N12	XYN8+F35FZ	Screw with Washer	12
	N13	XYN5+F30FZ	Screw with Washer	4
	N14	XSC5+20FZ	Screw	1
	N15	XTS4+30AFZ	Screw	12
	N16	XYN3+F20FZ	Screw with Washer	11
	N17	XYN4+F20FZ	Screw with Washer	3
	N18	XTT4+12A	Screw	16

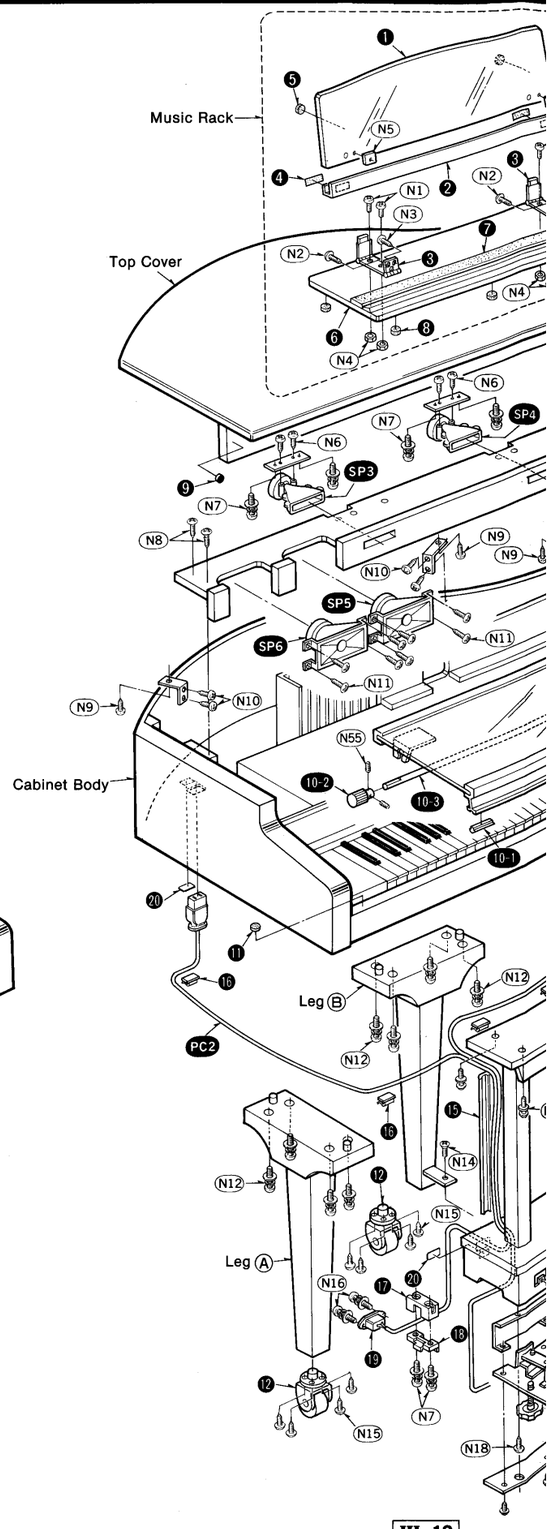
	Ref. No.	Part No.	Description	Per/Set
	N19	XTW3+12J	Screw	4
	N20	XTV3+8BFZ	Screw	1
	N21	XTW3+10J	Screw	9
	N22	XTW3+8C	Screw	9
	N23	XSN3+10	Screw	2
	N24	XSS3+6	Screw	3
	N25	SNEG1491A	Thumb Screw	2
	N26	XTW3+6J	Screw	2
	N27	XYN3+F25	Screw with Washer	4
	N28	XTB3+8AFZ	Screw	10
	N29	XWG3FZ	Washer	10
	N30	XTT4+30A	Screw	10
	N31	XYN4+F25	Screw with Washer	4
	N32	XYN3+F8FZ	Screw with Washer	2
	N33	XTB35+16A	Screw	4
	N34	XTB3+10A	Screw	1
	N35	XWA3B	Washer	1
	N36	SNEG770A	Washer	2
	N37	XNS12FZ	Nut	2
	N38	SNE4021-1	Nut	2
	N39	XWG3X13	Washer	8
	N40	XYN3+F25	Screw with Washer	8
	N41	SNEG150B	Washer	10
	N42	XYN5+C25FZ	Screw with Washer	8
	N43	SNEG1380B	Screw	2
	N44	XYN3+F6	Screw with Washer	8
	N45	XTB35+12A	Screw	1
	N46	XTT4+14A	Screw	4
	N47	XTN5+10BFY	Screw	1
	N48	XTW3+10JFVC	Screw	2
	N49	XTW3+10TFZ	Screw	28
	N50	XTV3+8B	Screw	31
	N51	XTW3+8LFZ	Screw	6
	N52	XTW3+8J	Screw	2
	N53	XYN3+F20	Screw with Washer	2
	N54	SNEG491	Nut	2
○	N55	XXE4D5FP	Hex Screw	4
	N56	XWA5BFZ	Washer	2
	N57	XSS3+5FZ	Screw	1

EXPLODED VIEWS OF CABINET





III-11



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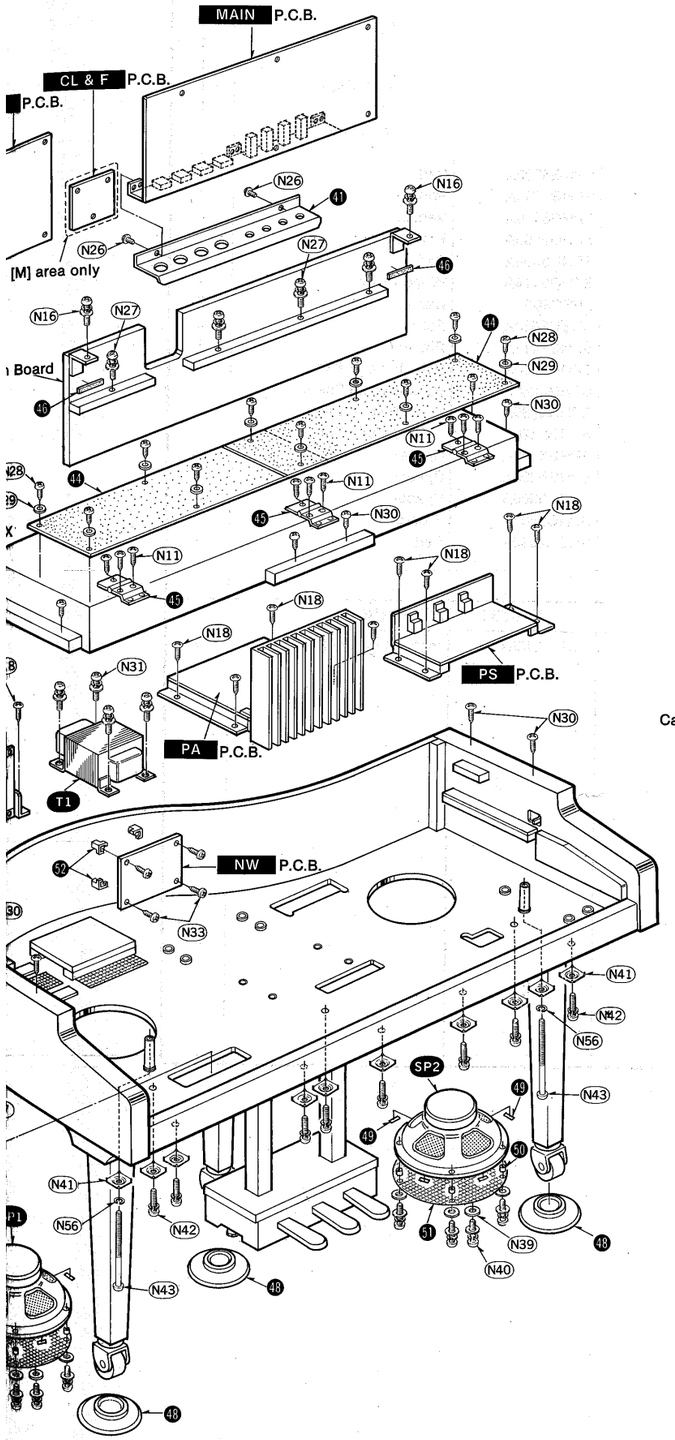
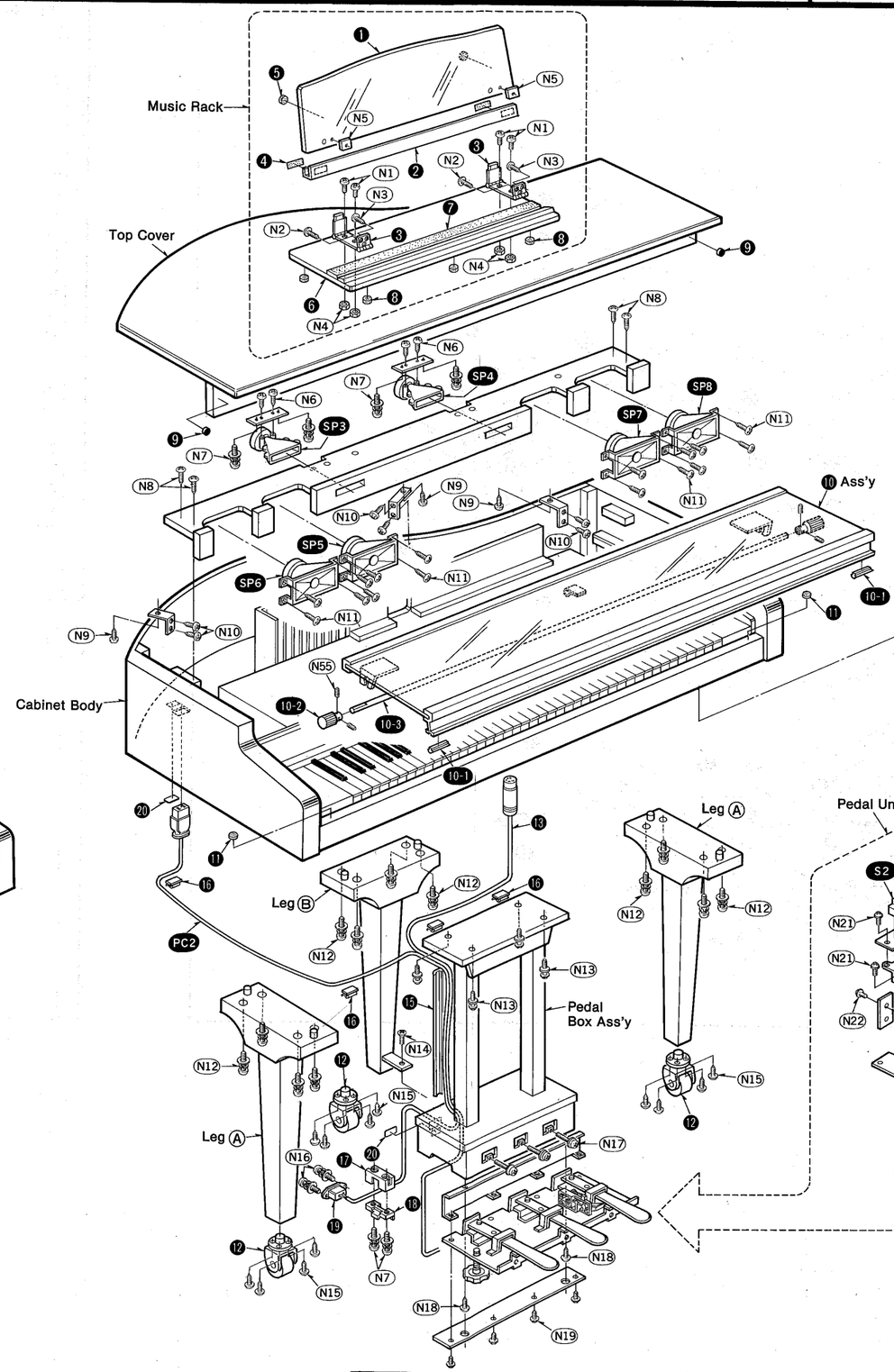
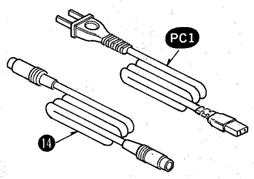
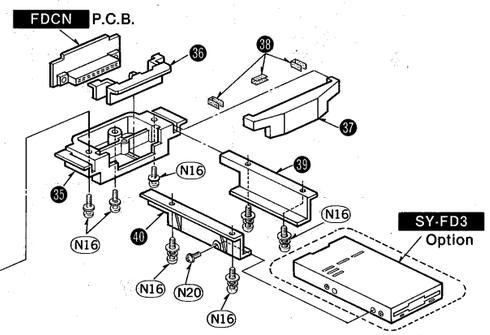
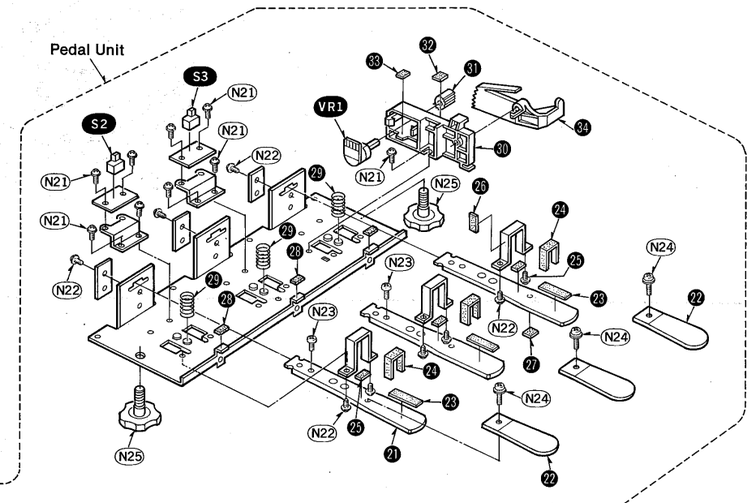

MAIN P.C.B.
CL & F P.C.B.
P.C.B.
[M] area only
Board
PS P.C.B.
PA P.C.B.
NW P.C.B.
T1
SP2
P1

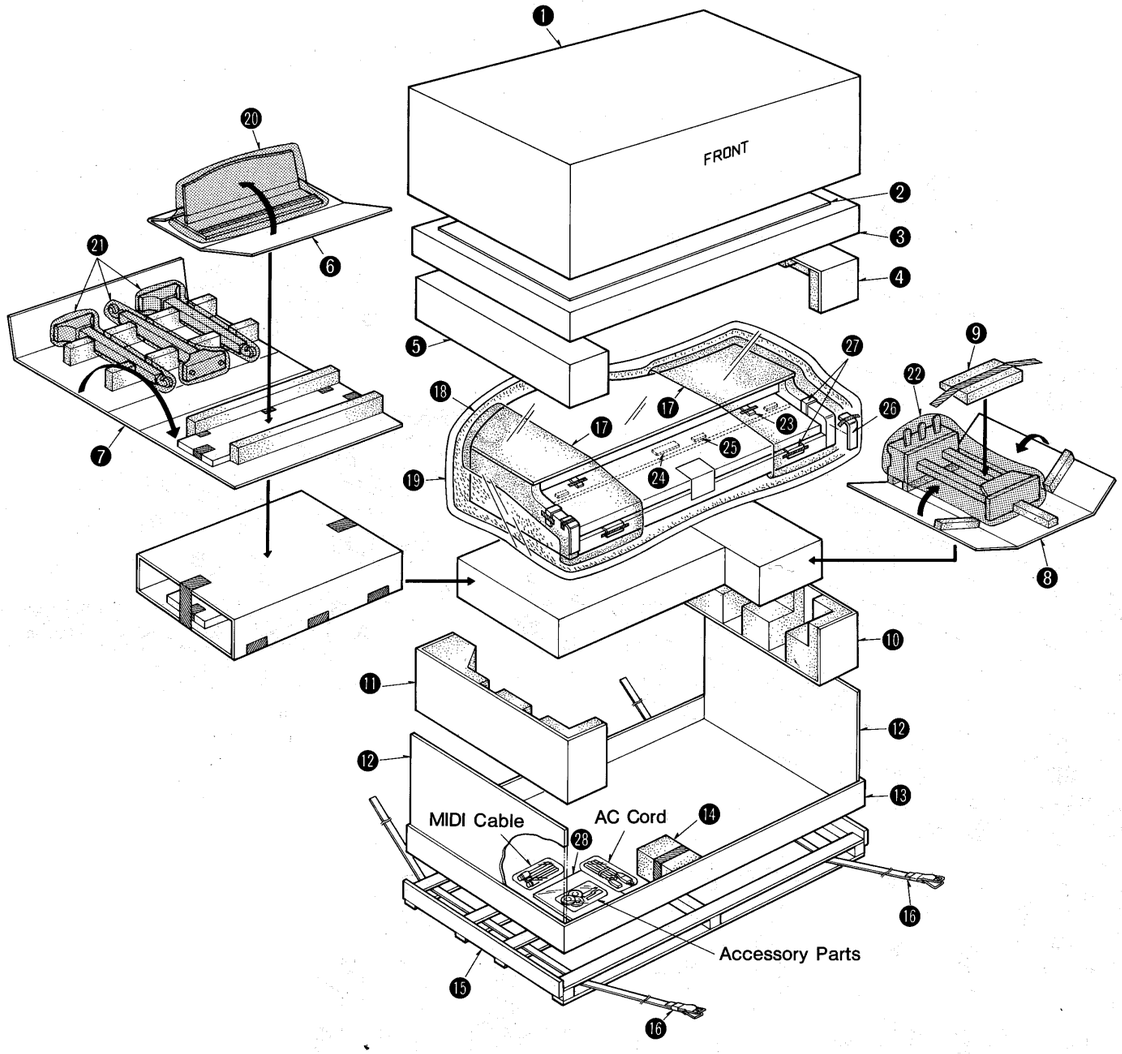

Music Rack
Top Cover
Cabinet Body
Leg Ⓐ
Leg Ⓑ
PC2
Pedal Box Ass'y
10 Ass'y
SP3
SP4
SP5
SP6
SP7
SP8


PC1
14


FDCN P.C.B.
SY-FD3
Option


Pedal Unit
S2
S3
VR1

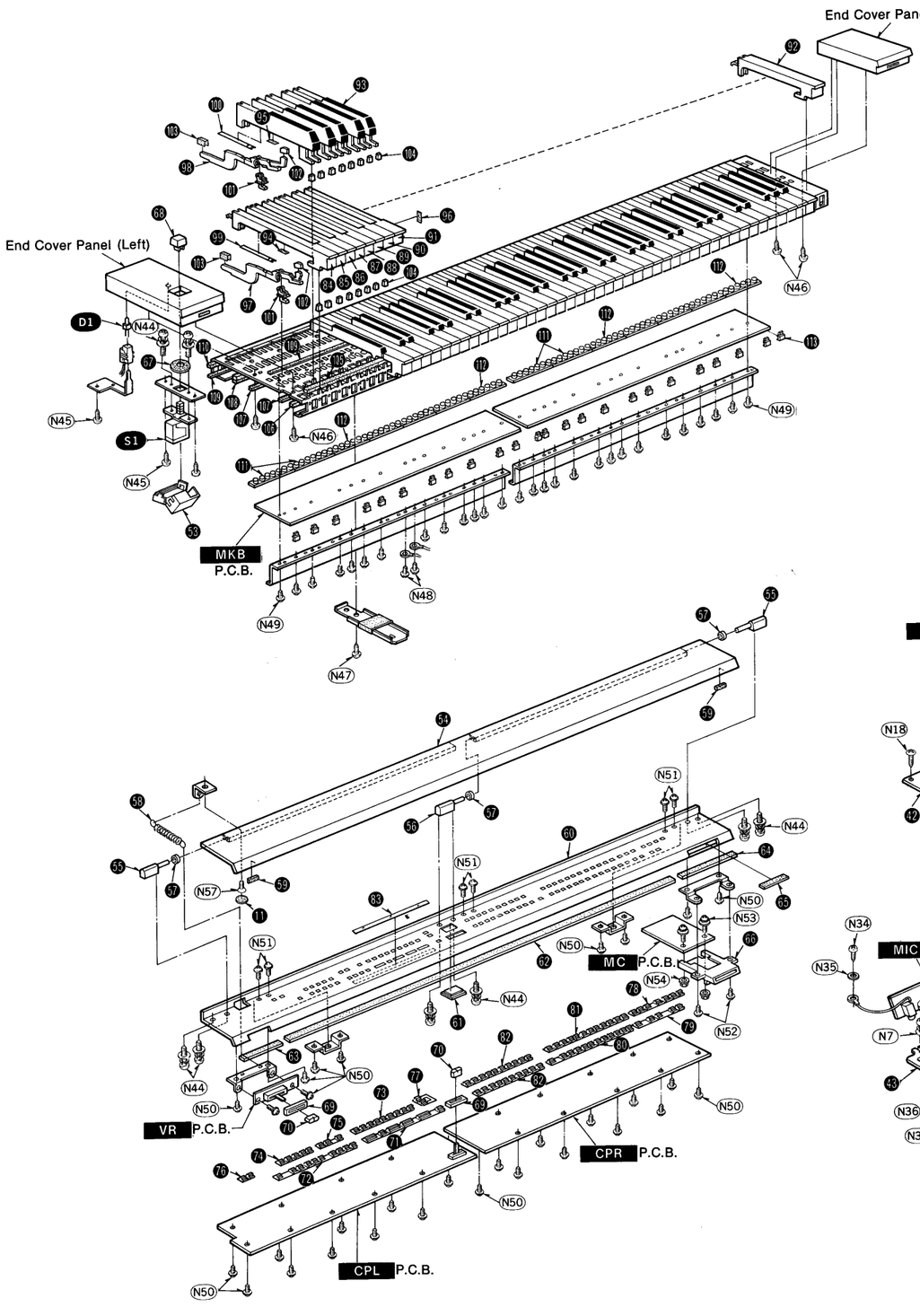
PACKING

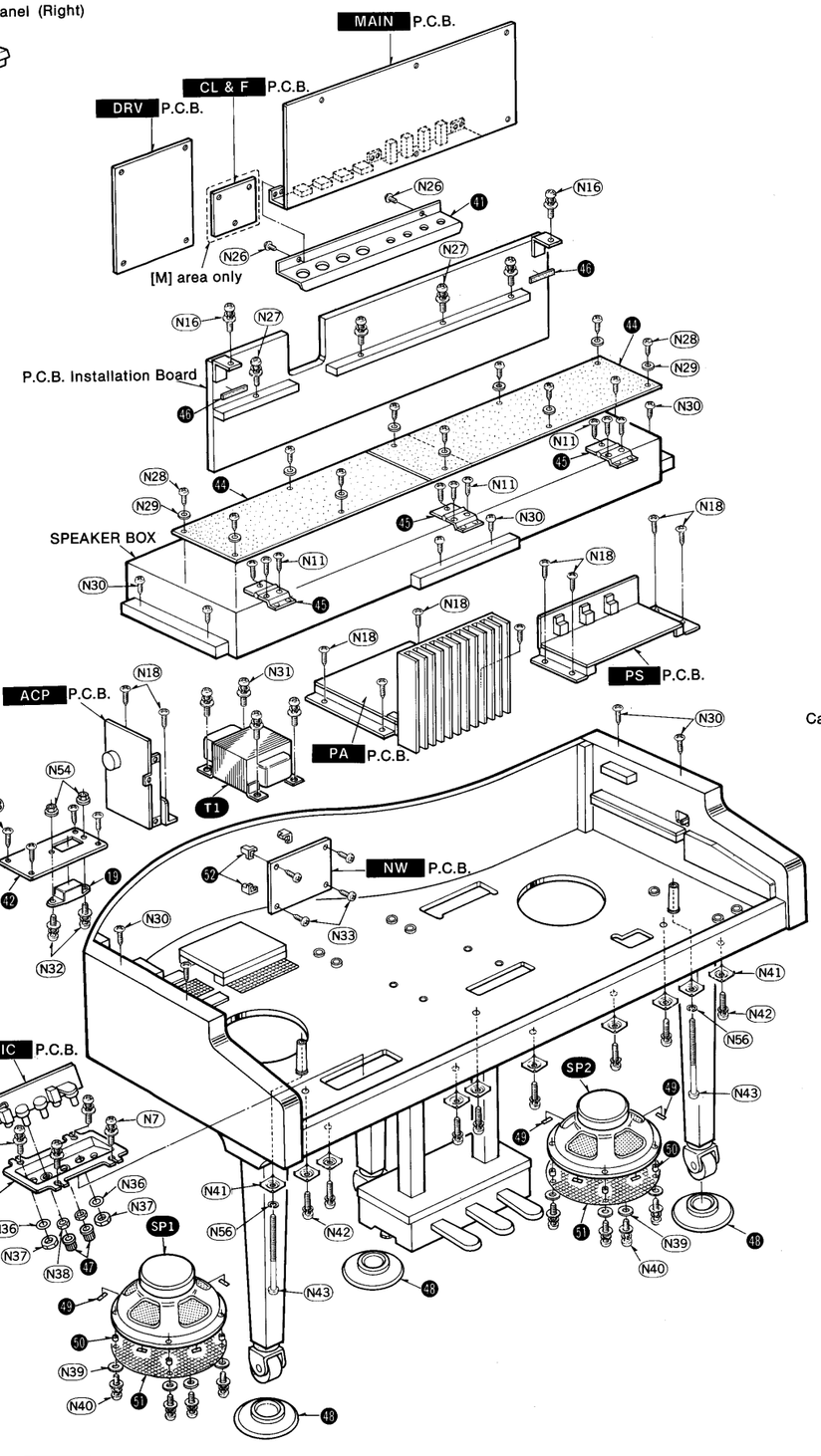


■ PACKING PARTS

	Ref. No.	Part No.	Description	Per/Set
○	1	SPNG2059A	Carton Box	1
○	2	SPNG3115A	Veneer	1
○	3	SPNG2058B	Top Case	1
○	4	SPNG5798B	Pad	1
○	5	SPNG5797B	Pad	1
○	6	SPNG2057A	Music Rack Case	1
○	7	SPNG2055A	Legs Case	1
○	8	SPNG2056A	Pedal Box Case	1
○	9	SPNG5803A	Pad	1
○	10	SPNG5800A	Pad	1
○	11	SPNG5799A	Pad	1
○	12	SPNG3116A	Veneer	2
○	13	SPNG2058A	Bottom Case	1
○	14	SPNG5804A	Pad	1
○	15	SPNG3114A	Wood Crate	1
	16	SPSG40A	Band	2
○	17	SHSG3920A	Felt	2
○	18	SPHG2211A	Flannel	1
○	19	SPHG2200A	Polyethylene Bag	1
○	20	SPHG2240A	Polyethylene Sheet	1
○	21	SPHG2230A	Polyethylene Bag	3
○	22	SPHG2220A	Polyethylene Bag	1
	23	SPNG5161A	Spacer	4
○	24	SPNG5802A	Spacer	1
○	25	SPNG5805A	Spacer	3
○	26	SPNG5801A	Protector	2
	27	SHSG2090A	Felt	4
		INSTRUCTION BOOK		
○	28	SQFGA1351	Instruction Book	1

EXPLODED VIEWS OF CABINET





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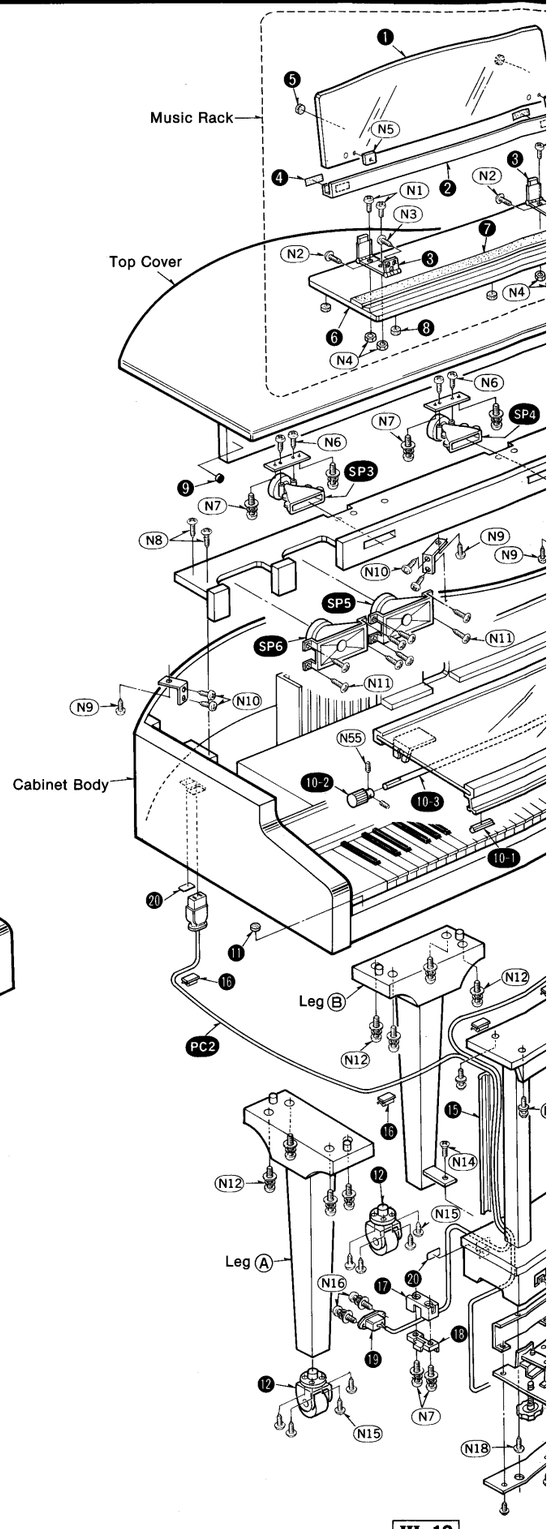
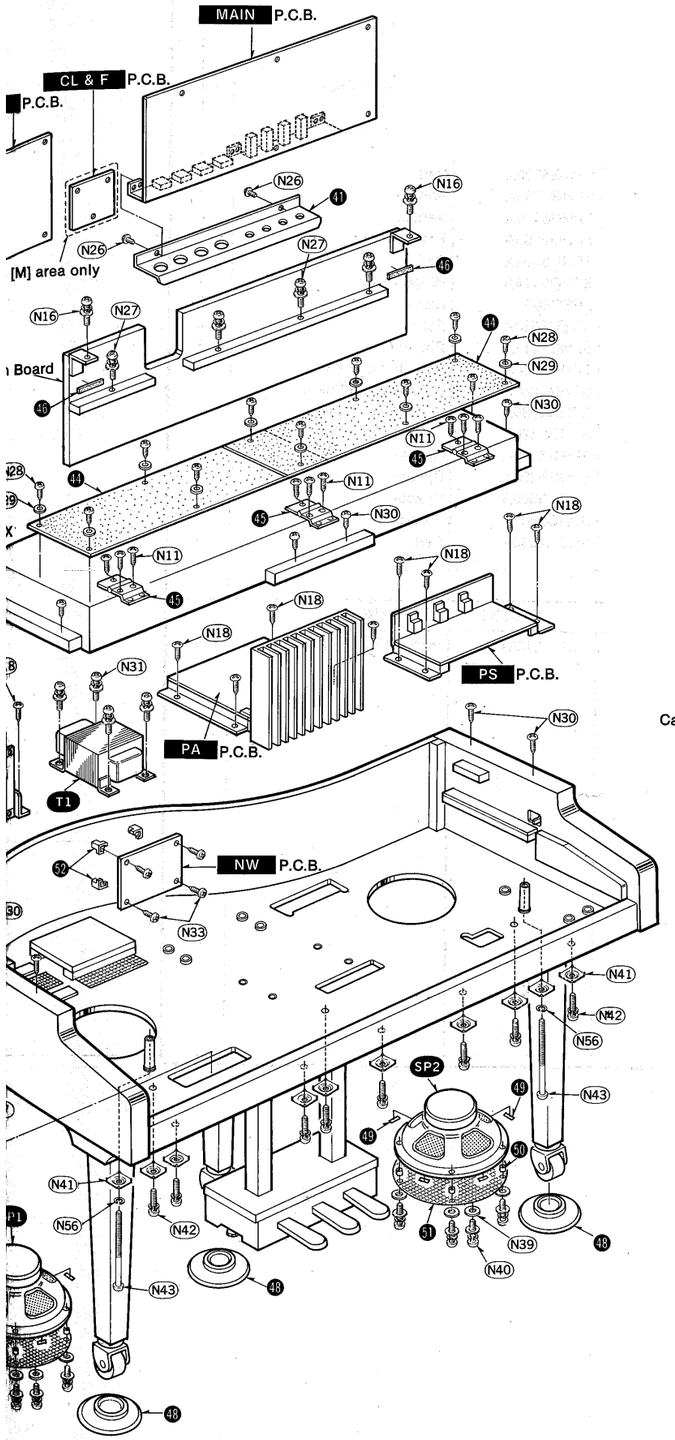


III-12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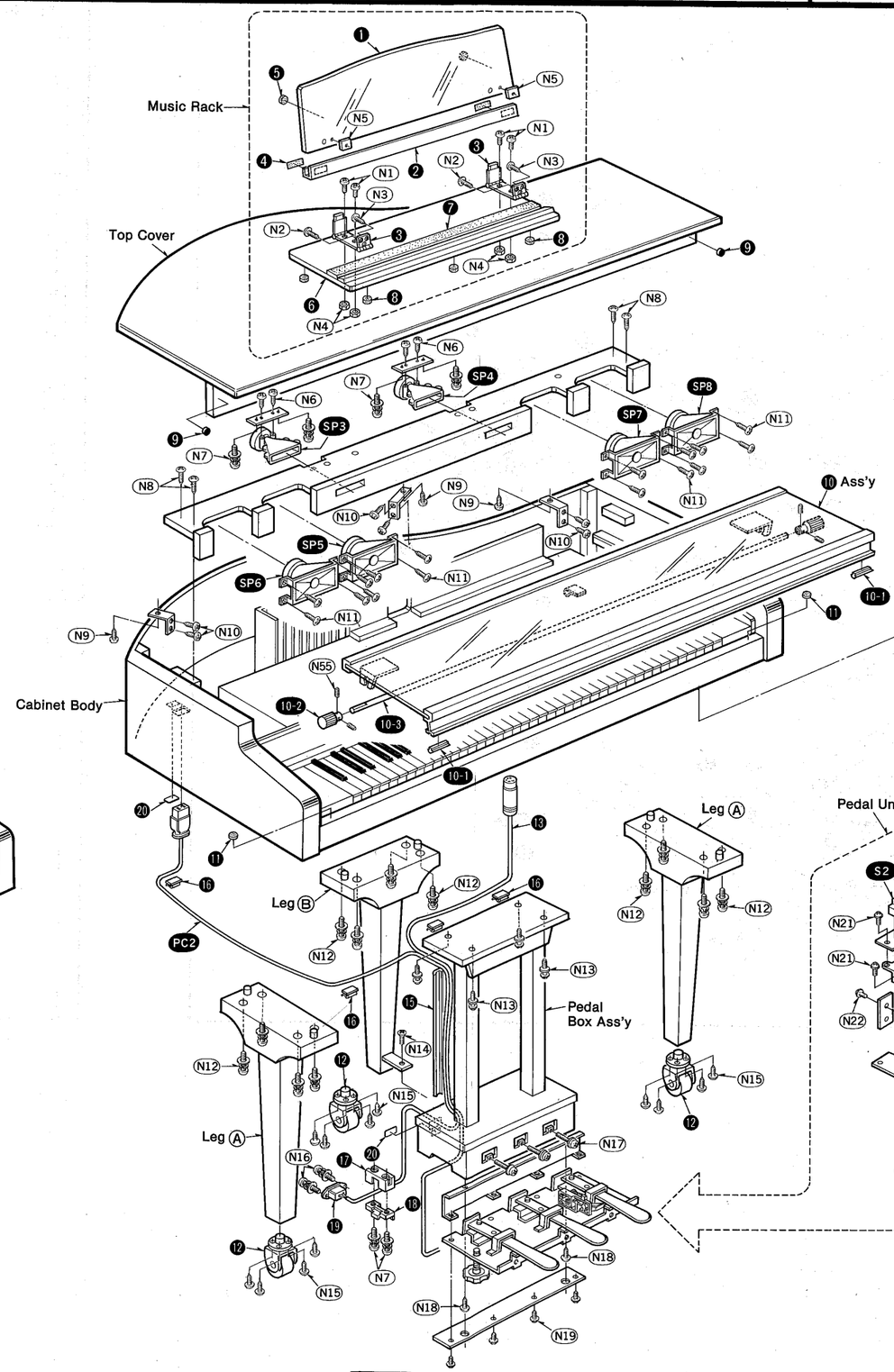
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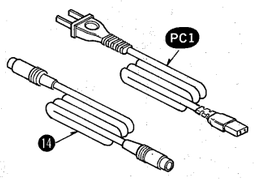
PC1
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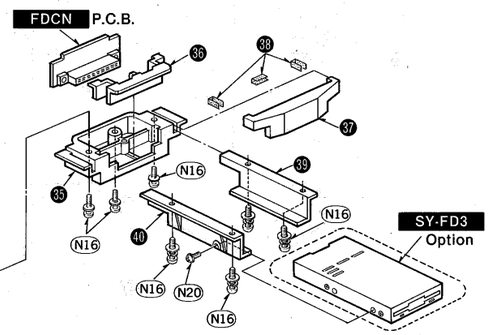
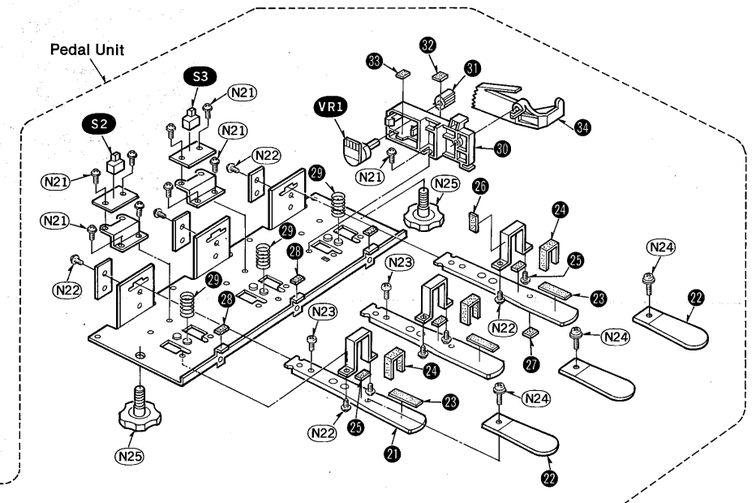
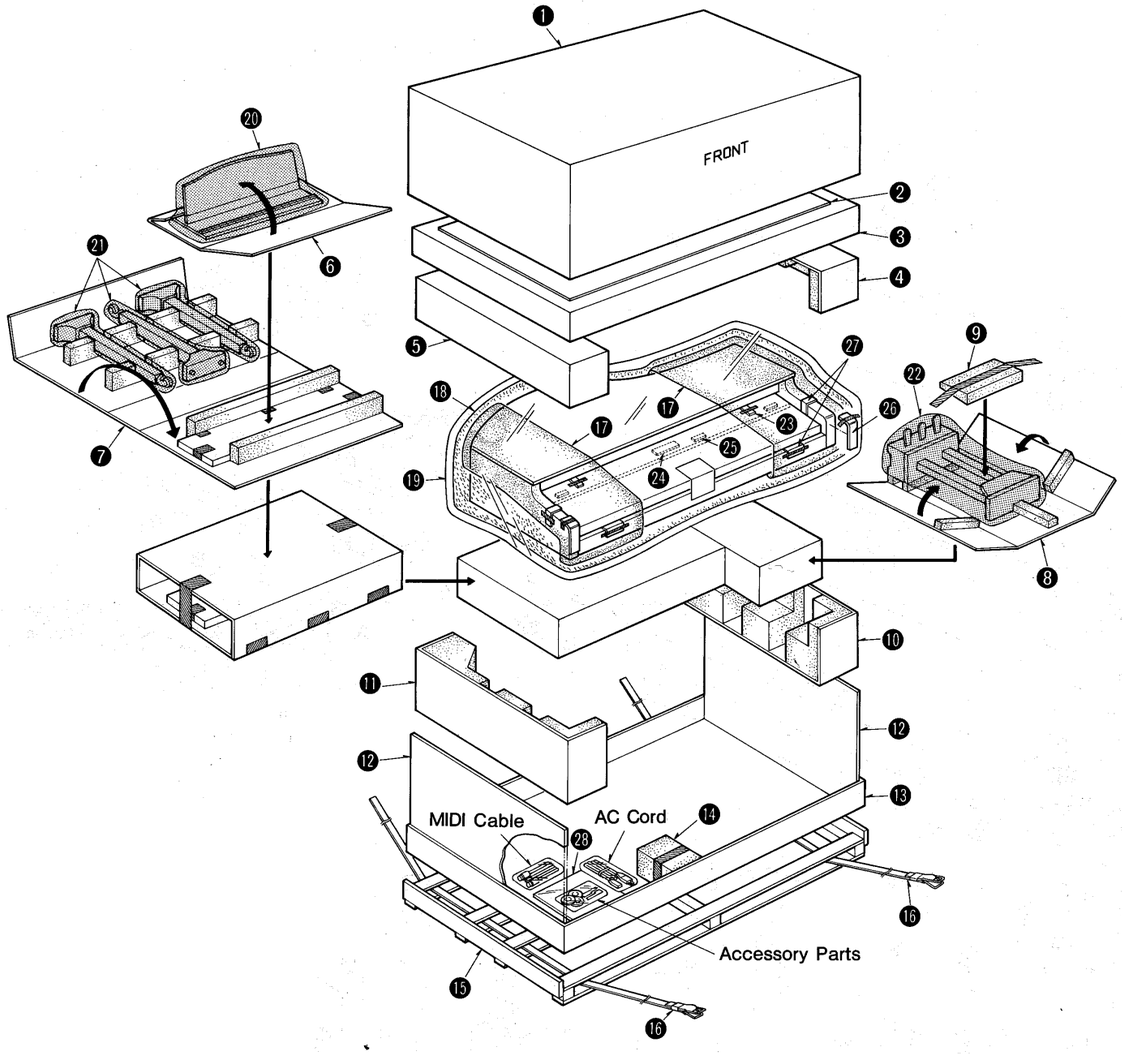

FDCN P.C.B.
SY-FD3
Option


Pedal Unit
S2
S3
VR1

PACKING



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